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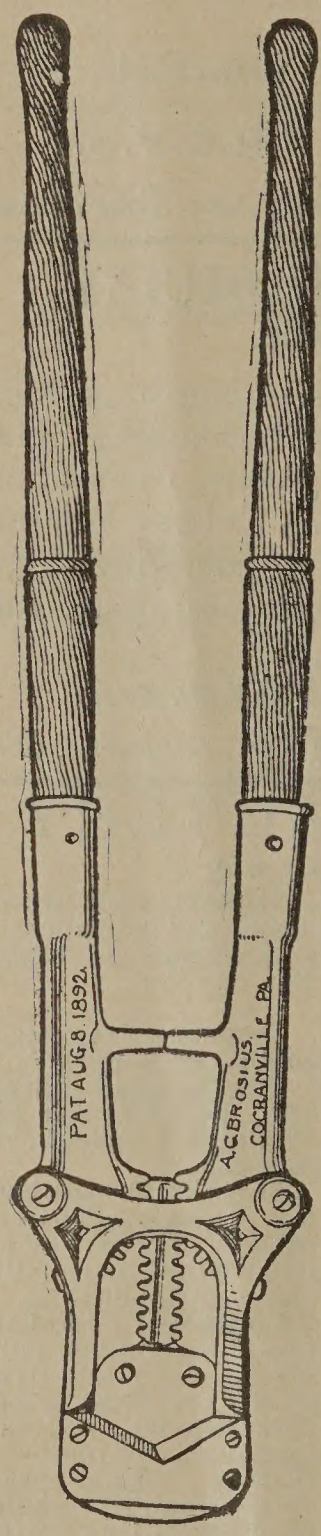

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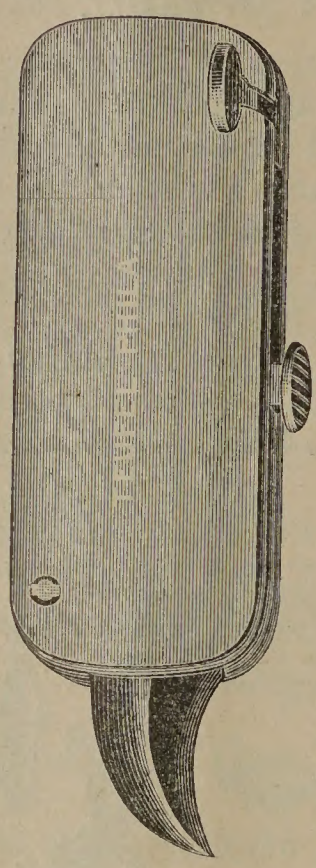

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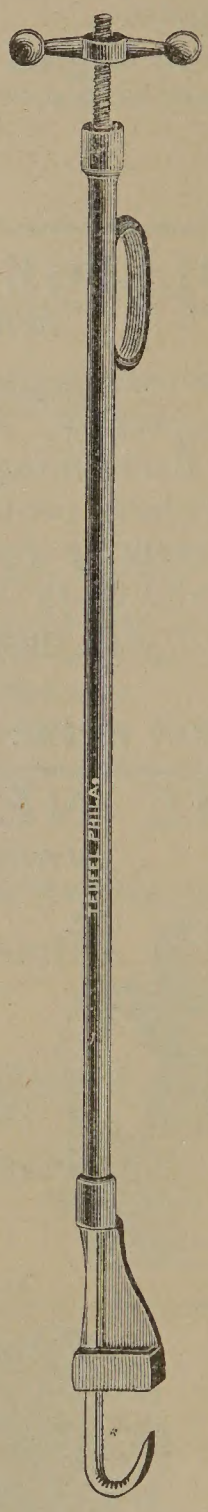

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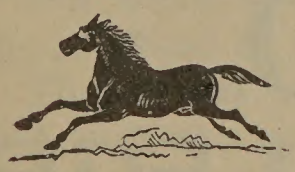

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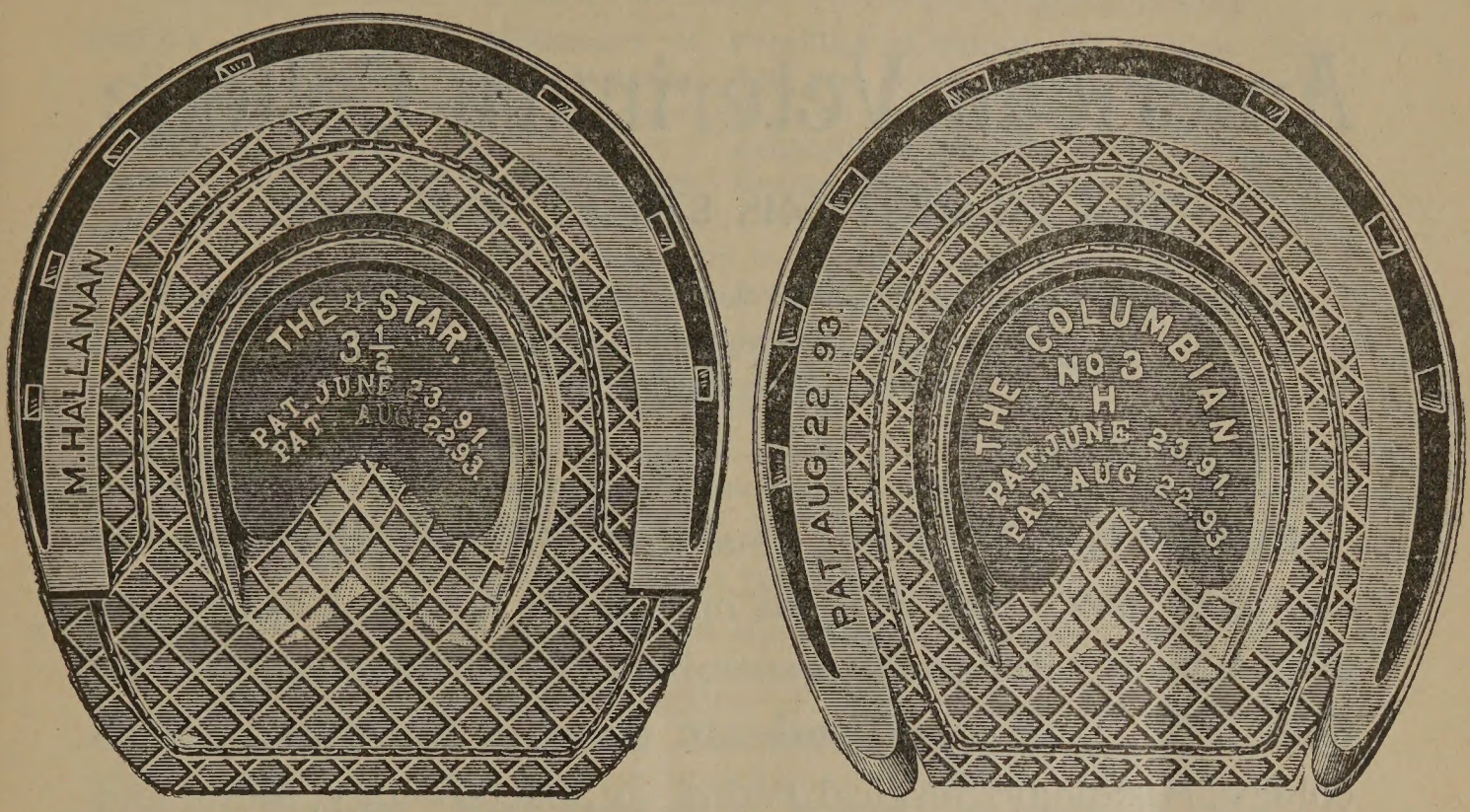

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PURE MILK.

BY R. A. PEARSON, B.S.,
ASSISTANT CHIEF, DAIRY DIVISION, UNITED STATES DEPARTMENT OF AGRICULTURE.

THE question of pure foods is one receiving much attention. Those foods having an indefinite composition and whose values are not easily determined by a superficial examination are, naturally, the ones that the strongest efforts are being made to improve. Of these milk is the most important. It is unnecessary at this place to dwell upon the value of milk and its products as food, or to refer at length to the large number of people, especially the sick and the young—the ones least of all able to resist disease—who depend mostly or entirely upon milk for their subsistence. This fluid contains all the constituents of a complete food, and when it is fresh they are in a condition to be easily digested. It is natural that such a medium should be, and is, easily contaminated, and much interest has been aroused in the efforts being made to produce a pure article. Producers appreciate the importance of reform, and methods of producing pure milk are frequently discussed in farmers' meetings.

The purity of milk depends upon the selection, health, care, and feed of the animals; the cleanliness of the utensils; the degree of cleanliness that obtains in the stable and all places where milk is allowed to be; the neatness of the persons who handle the milk; the temperature at which it is held; the age of the milk when it reaches the consumer; and its care after the final delivery. The steps through which this delicate fluid passes might be compared to links of a chain—if any one is imperfect, the entire chain is weak, even though every other link be faultless. From a practical standpoint the subject is pretty well covered by popular lectures and many articles in print.

The medical profession and many scientific bodies are interested in the question of pure milk. They look at the matter from a somewhat different standpoint than the farmer, and usually discuss the questions more from a scientific point of view. The subjects occupying their attention are usually the bacterial infection of milk, its germ content, milk as a carrier of disease, the food-value of milk, etc. Very practical papers are frequently offered. Physicians have many opportunities of seeing and following the results of the use of unwholesome milk; they realize that about one-third of all the deaths are of infants, a large proportion of whom are fed on cow's milk, and this food receives its share of blame for the high mortality. Extremely rash statements are sometimes made, and some persons have become so alarmed that they have given up the use of milk. The "milk scare" seems now to be a thing of the past, and it is to be hoped that it will not again be revived. Some of the agencies that have served to increase the confidence of the consumers are the enforcement of laws relating to the composition of milk, the great improvement in the production and care of milk adopted by many leading dairies, and the milk that is practically perfect in every way now to be found on the market in most cities. The improvement in milk sold in cities and towns has been great. Only a few years ago it was the privilege of any dealer to add as much water to his cans or take as much cream from them as he pleased, and as long as he could make the customer believe the milk was good he was satisfied. The general enforcement of laws against skimming and watering has had a marked effect on improving the quality of milk so far as its chemical composition is concerned.

Pure milk, however, does not signify simply milk having a normal chemical composition. It means freedom from any form of contamination, not the least important of which is bacterial contamination. The sanitary side of dairying needs to be brought into greater prominence, and requires much more attention than it has received.

The contaminations of milk may be divided into two kinds: (1) those affecting the quality from a chemical standpoint, and (2) those affecting the quality from a hygienic standpoint. The first relates chiefly to skimming and watering, by which the quantity and relative amounts of the various constituents are changed; the second to the bacteriological content and the various fermentations that may be taking place. It is sometimes attempted to estimate the losses caused by skimming and watering, and enormous amounts

are named; but it is not believed that these nearly equal the losses caused by taints or peculiar changes of the milk, or bad effects of milk due to the organisms which it carries.

Milk is a most excellent medium for the development of bacteria; it contains the constituents necessary for germ-growth, and when it is drawn from the animal the temperature is just right for their rapid increase.

A multitude of forms of bacteria thrive in milk, and their growth and multiplication are marked by changes in the taste, odor, color, and appearance of the fluid. The most common species are those forming lactic acid, and causing the milk to become sour. These act on the milk-sugar, which constitutes about 5 per cent. of milk testing 4 per cent. of butter-fat, and produce lactic acid. Delicate tests have been devised for measuring the amount of acid in milk, and it is easily shown that when carelessly handled it contains two or three times as much acid as when of the same age but carefully handled. It should have less than two-tenths of 1 per cent. acid for household use. Several species of bacteria produce lactic acid; they are the most numerous forms about a dairy, and it is practically impossible to keep them all out of the milk. It was formerly supposed that thunder-storms caused milk to sour, but it has been proven that such is not the case; lactic-acid germs are responsible for sour milk.

Other forms cause the milk to become alkaline, in which condition it may curdle. Others produce various colors and cause the natural color to be tinged more or less deeply with red, blue, or yellow. Slimy milk is a fermentation in which the fluidity is partially lost, and when it is attempted to dip from the container long strings may be formed. A soapy taste is caused by another organism. Some of these germs seem to be harmless, but they are all highly objectionable; and when a dairy becomes affected with those causing peculiar changes, the milk is practically worthless until the trouble ceases.

When a milk emits a peculiar odor it is sometimes due to food the animal has eaten or to the milk standing in an atmosphere impregnated with a strong odor. A familiar example of the former class of taints is the taste of garlic, with which milk is affected in the spring and fall. The fact that milk readily takes up odors if exposed to them is well known to housekeepers, who are careful not to store it near vegetables or in any place containing an objectionable smell. Whether the taint of milk is due to feed the cows have eaten or to bacteria may usually be easily determined as fol-

lows: If the odor is strong when the milk is first drawn, and gradually decreases, it is probably due to food eaten by the cows. If it is not at first noticed, but gradually becomes apparent, continually growing worse, it is probably due to bacterial growth.

Pathogenic germs, as a rule, have no peculiar effect on milk; but they are readily carried by it, and outbreaks of disease have been due to milk contaminated by them.

Many methods of purifying milk are practised, but none of them are entirely successful. Dirt may be completely removed by patent strainers, filters, or the separator, but the bad effects of dirt cannot be gotten rid of so easily. These devices may make the milk appear clean, but none of them can take out bacteria or the products of their growth.

Sterilization has been recommended as a means of getting around the difficulty. If sufficient heat is applied the micro-organisms will be killed; but the products of their development up to the time of sterilizing remain; besides this, the taste of the milk is materially changed, making it disagreeable to many people, and it is supposed to be less digestible. The operation of sterilization also requires much labor and expense. Pasteurization requires less heat; it does not kill all the bacteria, and it has less effect on the taste of the milk. Much Pasteurized milk is now sold; but the fact that milk has been Pasteurized does not necessarily mean that it is clean or pure—it simply signifies that the active germs have been destroyed, and the milk (if it has been held at a low temperature), after being Pasteurized, is about the same as it was before being heated. The application of heat makes it possible to keep ordinary milk in good condition much longer than could otherwise be done, and at the same time retain its food value. A chief advantage of heat is the destruction of pathogenic germs that may be in the milk, and this is sufficient to cause some physicians to recommend that all milk not known to have been properly cared for and handled be Pasteurized or sterilized before use.

Preservatives are not here considered, as their use is deprecated by the best authorities.

Strainers, filters, Pasteurizing appliances, and other apparatus for cleaning and purifying milk are for the purpose of bringing it back as nearly as possible to the state of cleanliness in which it is found in the udder of the healthy cow. If it were drawn and handled with sufficient care none of these mechanical aids would be necessary. Bacteria are so abundant in the air about a dairy, however, that it is impracticable to secure milk without some infec-

tion; but it has been proven beyond a question that it is practicable and profitable to produce milk having but a few hundred bacteria per cubic centimetre, whereas ordinarily the same volume contains many thousand organisms.

(To be continued.)

WHAT PROFESSOR BANG'S WORK TEACHES.[1]

By Leonard Pearson, B.Sc., V.M.D.,
PHILADELPHIA.

Professor Bang, of the Imperial Veterinary School in Copenhagen, Denmark, is one of the greatest authorities on tuberculosis of cattle. His researches in this field have been published from time to time during the last fifteen years, and to him belongs the credit of having first discovered and called attention to many of the facts in connection with this disease that were previously unknown, but have since been repeatedly observed and re-demonstrated.

Denmark, Prof. Bang's country, is one of the smallest in Europe, but its inhabitants are thrifty, frugal people of a high order of intelligence and much conservatism. They depend largely, if not principally, upon the products of the dairy for their support, and although the country has a population of but 2,200,000, and an area of but little over 15,000 square miles, about one-third the area of Pennsylvania, there are in Denmark about 1,700,000 cattle (approximately the number in Pennsylvania). To illustrate the importance of the dairy it may be stated that in 1890 Denmark exported more than $22,000,000 worth of butter and more than $2,000,000 worth of cattle. This amounts to more than $10 for each inhabitant of the country.

It has been known for a long time that tuberculosis is a widespread disease among the cattle of Denmark, and various measures have been recommended and applied with a view to its suppression. From the above statistics it can readily be seen that the subject is one of great economic and national importance in Denmark, because it threatens the principal source of the country's wealth and prosperity. In 1892 an appropriation was made by the government for the support of investigations to be carried out by Prof. Bang for the purpose of determining the most practical means to be employed in restricting the ravages of this disease. The appro-

[1] Read at the meeting of the Keystone Veterinary Medical Association, March 9, 1897.

priations have been renewed from year to year and increased until at present they amount to about $30,000 per annum.

This government work has been conducted on such a large scale and in such a thoroughly careful way that the results are more instructive than those derived from similar experiments conducted elsewhere. One of Prof. Bang's recent publications was translated by the Hatch Experiment Station of the Massachusetts Agricultural College and published as Bulletin No. 41 in August, 1896, and this bulletin has been referred to and quoted from so frequently that Prof. Bang's name is now well known among readers of agricultural papers and those who take an interest in the discussions on tuberculosis of cattle. It is always possible, by quoting disconnected sentences and isolated paragraphs, to give an inaccurate and sometimes a very misleading impression as to the author's opinions and statements, and this has occurred in reference to the writings of Prof. Bang.

The writer has been familiar with the work of Prof. Bang for a long time, and has given his numerous publications careful study, which has been supplemented by conversation and correspondence with their author. The lessons that may be learned from Prof. Bang's writings and experiments are so important to us in this country at the present time that it seems well to formulate some of them and to attempt to express them without ambiguity. Among the most important are the following:

Prevalence of Tuberculosis. It had been known for a long time that tuberculosis prevailed extensively among Danish cattle, but the actual extent of the disease as revealed by the use of tuberculin was something of a surprise. In testing more than 53,000 cattle it was found that 38.5 per cent. of them were tuberculous to a greater or less degree. Moreover, it has been shown that the germs of tuberculosis are not omnipresent, because many herds are entirely free from all traces of this disease, and in some of these healthy herds the cows were large producers of the class.

Degree of Contagiousness of Tuberculosis. It has been clearly shown that the longer the disease exists in a herd the greater is its prevalence, leading to the belief, which is substantiated by other observations and experiments, that long-continued contact is necessary for the extensive prevalence of tuberculosis in the herd, and the longer such contact has existed the more extensive will be the spread of the malady. That some herds remain healthy notwithstanding the fact that they have been exhibited at cattle-shows and in public places, where they must inevitably have been exposed to

the germs of tuberculosis for a short time, indicates that such exposure is not always dangerous. The infection in many herds has been traced to the introduction of a single diseased animal.

The Infectiousness of Milk. The milk from tuberculous cattle has been known to produce tuberculosis in calves and swine in very many cases, and also, strange to say, in such a comparatively immune animal as the horse. Attention is called to the dangers that accompany the use of skimmed milk from creameries, because if part of this milk is supplied by tuberculous cows, and the mixed product is returned to the farm, the disease may in that way be communicated to healthy herds; and common observation has proved that this is not rare. It is advised to heat all such skimmed milk to 185° F. before it is used. This destroys the tubercle bacilli.

Heredity. Tuberculosis is rarely inherited, and in all but the most exceptional instances the calves of tuberculous cows are sound when they are born, and if removed from contact with tuberculous animals and fed on milk from sound cows or milk that has been heated to 185° F. they will remain free from tuberculosis.

The matter of inherited predisposition to tuberculosis is considered, and some doubt is thrown upon its influence and even its existence. As there is no reason to assume "that a calf whose sire or dam suffers from tuberculosis accidentally acquired has thereby inherited a predisposition for tuberculosis which offers a more favorable nutritive soil for the development of the germs of tuberculosis, the predisposition, however great it may be, can play no practical part if infection is avoided."

Tuberculin as a Diagnostic Agent. The prevailing opinion as to the accuracy of tuberculin as a diagnostic agent is amply sustained, and it is established that the use of tuberculin furnishes by far the most accurate means of detecting tuberculosis and permitting the inspector to separate the healthy from the diseased cattle. It is made clear that the degree of reaction does not indicate the extent to which an animal is diseased, and that a high reaction may sometimes occur in an animal that is but slightly affected. It is also stated that from the degree of reaction conclusions as to the development of the disease must be drawn with great care. The reported failures to discover the lesions of tuberculosis in making post-mortem examinations upon animals that have been condemned by the use of tuberculin are incorrect in great part, since practically all of the tuberculous animals destroyed in European countries are killed in slaughter-houses. As their flesh is prepared for the market after inspection and under certain

restrictions and exceptions, it is quite evident that all parts cannot be fully investigated, and doubt always accompanies a negative result.

Prof. Bang's personal experience, which is larger than that of any other veterinarian, has shown but three cases of typical reaction in which it was not possible for him to discover tuberculous deposits, and in one of these there was disease of a chronic and incurable character. It is stated, and this is well known to every one who has used tuberculin practically, that some severe cases do not respond to the test, but must be detected by a physical examination. Prof. Bang says that it is probably always possible to discover these causes by the usual clinical investigation, except where the disease has become stationary and is of slight development. These exceptions are minor and unimportant. Tuberculin is not to be relied upon implicitly as a diagnostic agent, but furnishes a method of diagnosis so incomparably superior to the methods previously employed that it is scarcely to be compared with them.

Dangers Attending the Use of Tuberculin. After an experience extending over 53,000 cases Prof. Bang is of the opinion that tuberculin is not injurious to healthy animals and that it cannot injure tuberculous animals, except by causing the disease to advance more rapidly, and that such "an acute development of tuberculosis as a result of tuberculin injection is to be feared only exceptionally and then in cases of advanced tuberculosis."

His final conclusion is "that we have now found that in tuberculin we possess if not an absolutely infallible, still an excellent means for recognizing tuberculosis, and that its application is not connected with any particular danger." It is also stated that "tuberculin has been employed upon a large scale for years, and still the demand from farmers constantly increases."

The Use of Infected Cattle. It is evident that if all tuberculous cattle in Denmark were destroyed, without compensation to their owners, the result would be widespread financial distress and ruin; and it is out of the question for the government to attempt to pay for all such cattle, because the amount required for this purpose would be beyond its resources. Therefore another method has, perforce, been adopted, viz., the retention of the animals that have reacted to the tuberculin test, and use them for breeding, for milk-production, and for the shambles. It has been found that under certain precautions the cattle can be so used with safety, and the saving is so great that a more radical method would under the

circumstances be unjustifiable. But it must be observed that the tuberculous cattle are kept alive only in perfect isolation from healthy cattle. They are cared for separately and, when possible, by separate attendants. They are kept in separate buildings or in distinct and completely separated sections of a common barn. Their calves are removed the day after birth and are brought up on milk that has been heated to a point that will insure the destruction of tubercle bacilli. Their milk is used for the manufacture of butter (principally for export to England), but only after it has been heated to 185° F. In this way healthy herds are being developed from tuberculous ones, and, as the tuberculous cattle die or are killed for beef, the reacting division of the herd becomes smaller and smaller until finally it has disappeared, and thus tuberculosis is being allowed to die a natural death.

The Curability of Tuberculosis. Occasionally tuberculosis becomes latent after an animal has reacted to tuberculin; the subject improves in condition and fails to react upon subsequent injection, so that it may not be possible to confirm or re-establish the original diagnosis. This takes place most frequently in the cases that are less advanced; and some have thought that such cases might be cured. In order to throw light on this question Prof. Bang killed and made post-mortem examinations upon four animals of this sort, but found that they all had tuberculosis, and he says: "I therefore do not venture to draw from these observations the conclusion that the animals that failed to react one year after a typical reaction are to be regarded as cured. In many cases this conclusion would, perhaps, be justifiable; but, as it cannot always be the case, I consider it advisable to look upon animals that have once shown the typical reaction as suspicious and leave them in the reacting division."

The Use of the Flesh of Tuberculous Animals. Under proper inspection and certain restrictions and exceptions it seems to be quite admissible to use the flesh of some tuberculous animals without danger, and such is the practice not only in Denmark, but in all other European countries. Some carcasses are condemned outright and destroyed. Others are sterilized and sold as cooked meat, while still others are allowed to go upon the general market without restrictions or with the information that it is derived from tuberculous animals, so that those who purchase it may use it with especial care. These measures are generally regarded as sufficiently rigorous.

It is Possible to Eradicate Tuberculosis. Most important of all,

Prof. Bang has shown that by the use of tuberculin and measures based upon its use it is quite possible to eradicate tuberculosis in herds. This he has demonstrated on such a large scale in so many instances that there can be no doubt about it. Moreover, he has shown that by the employment of the Danish system the suppression of tuberculosis can be accomplished at comparatively small expense, and that the measures inaugurated in Denmark are constantly growing in popularity among live-stock owners.

His conclusion, as published in Bulletin No. 41, above referred to, is as follows: "The struggle against bovine tuberculosis must, of course, be of several years' duration. But it can and must be crowned with victory. In this struggle tuberculin has yielded us invaluable service. Only with the aid of this agent can we determine the actual extent of this disease. On the basis of the tuberculin investigations we are already in position to establish a rational plan of operation; and by this means alone can we retain the advantages gradually won; but the contest is well worth the pains. The conquest of bovine tuberculosis promises not only large economic profit, but also the annihilation of an important source of human tuberculosis."

SUNSTROKE.[1]

By L. O. Lusson, V.M.D.,
ARDMORE, PA.

Sunstroke is a sudden cerebral disturbance of an apoplectic nature due to exposure to excessive heat of the sun, occurring when there is an absence of humidity, and accompanied by delirium, coma, and death. Predisposing causes—plethora and disordered digestion, with torpidity of the liver.

Direct Causes. Exposure to the rays of a blazing sun.

Symptoms. If the driver is observing, he will notice that the animal is dull, that he does not sweat; his breathing is heavy, nostrils dilated; later his gait is unsteady, and a little later may stagger and fall, but will try to regain his feet and continue to rise and fall until, from exhaustion, he is compelled to remain down. He will throw the head up and down with great violence, and is unconscious of pain when striking the ground. If we make our examination at this time we find the skin extremely hot; mouth dry and very hot; mucous membrane congested; pulse rapid and cordy;

[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 3, 1897.

respiration very fast; temperature from 105° to 107° F. This period of delirium may last from one to three hours. Then comes the period of collapse, the temperature suddenly falls two to four degrees, the surface becomes cold and clammy, the respirations are rapid, shallow, stertorous breathing, pulse rapid and feeble. The animal is then in a perfect state of coma, and if not treated usually dies in about an hour. The alterations are those of an intense cerebral congestion, the centres of the medulla most affected.

Diagnosis. From the symptoms and differentiated form of exhaustion, prodromes of laminitis, by the delirium, high temperature, and absence of diarrhœa.

Prognosis. Very fatal, on account of the inability to handle the subject.

Treatment. Perhaps bleeding in plethoric animals and at the beginning of delirium. Ice-packs or cold water over the surface. Ice to the head and in the mouth until temperature begins to fall; then push alcoholic stimulants concentrated in small quantities every half-hour. Application of alcohol with friction over the surface; warm clothing; hypodermic injection of strychnine, one grain every half-hour, when collapse is expected or subject does not rally under alcohol.

As this brief paper is only the result of my personal experience with sunstroke, and is written solely to bring forth a discussion, I ask for the kind indulgence of this Association.

CANNABIS INDICA—CANNABIS AMERICANA.[1]

By Charles Williams, V.M.D.,
PHILADELPHIA.

The *United States Pharmacopœia* recognizes the dried tops of the cannabis sativa, or common hemp-plant, as it grows in India and in our own country. The fluid-extract of this plant is a dark-green, resinous liquid of a peculiar narcotic odor and taste. Gunjah is the dried plant as sold in the bazaars of Calcutta. Churrus is the resinous exudate with the epidermis, etc., scraped off the leaves. Hashish is an Arabian preparation of the drug. The resinous principle, representing the active ingredient of the drug, is known as cannabis. It also contains a trace of volatile oil.

Physiological Action. Indian hemp is a deliriant narcotic,

[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 3, 1897.

anodyne, and antispasmodic. Bhang is said by Finlay Dun to be widely used in India to stay the flagging spirits, and larger doses to produce pleasing, drowsy narcosis. Similar effects are said by the same author to be produced in horses: the flagging appetite is improved, a capacity for exertion increased, and restlessness overcome. Sir Robert Christison stated that "for energy, certainty, and convenience Indian hemp is the next anodyne to opium, and often equals it." Mr. Richard Rutherford, of Edinborough (says Finlay Dun), has used gunjah for several years for colic in horses, and "finds that it acts promptly and without any of the headache, delirium, or blocking of the bowels, as opium is almost sure to do. Horses receiving full doses soon become drowsy, hang the head, finally relax the ears, close the eyes, nod the head, and sway from side to side. If the drug is continued they lie down, stretch out at full length, and certainly evince every symptom of dreaming, for they will move the lips, wink the eyes, and work the limbs as a dog will do when dreaming by the fire; but I never remember their making any vocal noise. The effects pass off in half an hour to an hour, when the animal rises and usually begins feeding without any other consequent symptoms."

Cannabis in Colic. It is on this point that I wish to speak of the drug as of the greatest use to the veterinarian. I consider this drug is the anodyne *par excellence* in all our animals, for, as Finlay Dun says, "it gives no deleterious after-results, and an animal with a simple case of abdominal pain may work again in a few hours when relieved." In treating a case of colic I find about two drachms of the fluid-extract poured on the tongue and repeated every fifteen to twenty minutes are about right; some use less and others use more. I believe there is no danger in larger doses, but I think equally good results are derived from oft-repeated small doses. At all events you will save expense and relieve the animal about as quickly. If the animal's circulation is good, so that absorption takes place readily, and the extract is made by a reliable chemist, the animal should be under the influence in about thirty to forty minutes, and either lie down or doze off standing, after using only one-half an ounce to one ounce of extract. There are occasionally cases where it will be necessary to administer four ounces. But I can assure you, gentlemen, when it takes four ounces or more of a good preparation of this drug things will begin to look serious, and the vigilant practitioner will perceive long before he has gotten to this stage that there are other things required besides a simple anodyne, for all we claim of this drug is to make the

animal comfortable till nature can remove the offending element without interfering with the action of the bowels. Of course, I do not wish to be understood as recommending this drug as a panacea for all colics without any other treatment, as some do for their favorites (barium chloride, for instance); but when we get excessive flatus we need something to check fermentation, and the trocar to relieve pressure, and when we get a congestive colic we need the fleam, with mustard to the sides and cannabis by the mouth, and so on. But I will repeat, when a simple narcotic and anodyne are required, cannabis indica is the drug *par excellence*, and I think if any of you have never tried it you should do so, and it will give you much satisfaction.

WHY?

By W. L. Rhoads, D.V.S.,
LANSDOWNE, PA.

Why, my fraternal brothers, you ask, have I chosen such a subject? "Why" allows me scope for a number of inquiries and assertions as the subject would of itself suggest.

"Why" are we veterinarians, as a class, prone to travel in our own individual route or rut? I use the latter term advisedly, for too many of us are at present living in a rut, or perhaps a myriad of ruts, which will be found very hard to leave when we are at last awakened by the onward movement of the Juggernaut car of science, which we will find overtaking us in the natural course of events unless we now take hold of the work before us and live according to the revised reading of the old axiom, "that all things come to him who waits." This, in accordance with the times, has added to it, "and hustles while he waits."

Are not periods of depression in our work times when we are taught to note how narrow has become our sphere of work and how great the field of our possibilities when properly managed? Lowell has said, "to a healthy mind the world is a challenge of opportunities."

"Why" not make these times of waiting hours of improvement, that we may more thoroughly grasp our whole duties; that we may be better able to cope with the difficulties and dangers that constantly beset us on every side?

[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, March 3, 1897.

We should remember that absence of occupation is not rest—"a mind quite vacant is a mind distressed." "Why" wait around aimlessly with your thumbs thrust into the armholes of your vest or possibly stuck deep into otherwise empty pockets? If you think you are posing, let me make a suggestion: don't continue in that line. Veterinarians, as a rule, make poor artist's models. About one in a thousand succeeds, and you are not the man. You stand just as good a chance for a foreign mission, and you cannot get that until all the good after-dinner speakers have declined.

"Why" not use this time in attending and assisting your local veterinary medical associations? "Why" not at least answer the invitation tendered you to do so? "Why" is it that not 3 per cent. of the veterinarians so honored are enough interested to answer the same? Is it due at this time to a rush of business or on account of the exorbitant price of postal cards? "Why" do you consider your fellow-practitioner less worthy of an immediate reply than any other correspondent? Are you interested in the profession only so far as it has a monetary value to you directly? If your interest is of a broader gauge, and I trust it is, why not show it by granting your fellow-practitioner an early reply to all correspondence? "Why" not show your interest in a more potent form by attending the meeting of your local veterinary medical association? If you are not a member, go as a visitor. You will always find the latch-string out, or, in later phraseology, "just press the button, and they will do the rest." You will soon become so interested that you will realize your need of association-fellowship and wonder how you existed without it. Or probably you are one of those who are willing to enshroud themselves in a mantle of egotism and feel the meetings of the association unworthy of their attendance and support. Yes, I meant to use the word shroud, as such an article will be useful in an early professional burial. Do you not realize that the rapid advancement of our profession is due in a great measure to our associations? Then why are you contented to continue your parasitic existence? You cannot even be considered as a sponge, for it will upon pressure or by slow evaporation give out all it has taken up.

"Why" not give to your fellow-practitioners at these meetings, or through the medium of the veterinary journals, more of your cases and experiences, that all may be benefited and our worth to our people enhanced all over the land? Some one may be encouraged and enthused by your effort to lighten the burden of the veterinarian, and in return may suggest the idea you have been groping

after for years. "Why" not be willing at all times to give your professional brother a light from your cigar? He has gained; you have not lost; perhaps you have gained also by the aroma of his probably superior Havana, which had been useless to him until the procuring of your assistance. "Why" not be ever ready to reach out the right hand of good-fellowship and assist each other? Not willing to do it only on demand, but proffering it all times, thus showing to your professional brethren that you have an object in life—an object which in your case deservedly begins with a capital O.

What do we live for, if it is not to make life less difficult to others? "Why" not, in furtherance of this same end, take a greater interest in public affairs, and thus loan your valued influence to better government throughout the land? We, as a profession, take little appreciable interest in politics, and why? Is it because we are afraid of crossing our clientage? Can we not well afford to do without the practice of the narrow-minded cynic who ceases to employ us when we not only prove ourselves capable of administering to his stock, but prove we have a mind capable of independent thought by being men enough to assert the courage of our political convictions? "Why" is it that we find so few veterinarians on our local boards of health, when they are so well prepared both by education and training to act as sanitary experts in perfecting the healthfulness of the meat-, milk- and food-supply of a community as well as the sanitary surroundings?

"Why" is it that the veterinarians will vote, and in many cases assiduously work, to accomplish the desired ends for probably a valued client to us, financially, yet as a politician he may be a ringster and a spendthrift with the public moneys—moneys which too many of the legislators of to-day feel it a duty to spend in many cases wantonly and recklessly? Yet all this money comes through the channels of taxation from the individual who demands that the public receive it in a way which guarantees the greatest good to the greatest number. "Why" are our veterinarians assisting in this robbery of the populace by charging exorbitant fees for public work—fees which in many cases trebly repay them for that day's loss of private practice? Are you not putting a stumbling-block in the way of the furtherance of just such work? It is true a stumble may prevent a fall, but it is not well to stumble too often. It looks suspicious and may cause rumors; you will then have cause to ask yourself *Why?*

"Why" will our members deride and criticise legislation already

gained (which, though probably not what we would like it to be, is yet a stepping-stone to better results), when they absolutely refuse to loan their assistance toward the procuring of this much-to-be-desired article? "Why" is it that men most loud in their protest against such legislation, and always ready to illustrate its faults, are the ones who positively would not lend their assistance in its preparation in order that it might have been free from the defects against which they cry out? "Why" will our members try to break down good laws that many of them have sorrowed over in the past because they did not exist? "Why" will members of the veterinary profession who believe in the merit system of appointment see it endangered for their own selfish ends when they know that for their own gratification, lasting but for a few short moments at best, they endanger a system which all aim to perpetuate in their own professional career?

"Why" not pause a moment to think? You will then realize that your efforts for self-aggrandizement at the expense of your fellow-men are of the boomerang character, and are apt to turn upon the projector. Such work will in the end receive such recompense as it merits.

"Those who by aspersions throw a stone at the heads of others hit their own."

"Why" will the young men of to-day deride and criticise the older ones in practice with whom they come in competition? They fail to realize that their position as practitioners has been made possible by these same men, who have worked shoulder-to-shoulder early and late when there was little apparent honor in it, at the same time breaking tidal wave after tidal wave of ignorance, arrogance, and depression, knowing full well that good intentions clothe themselves with sudden power.

"Why" is it that so many will be fully aware of many things punishable, yet apparently fail to see them till they begin to encroach upon forbidden personal territory? Then the cry of anguish is raised, and you are surprised that you are not immediately lifted out of a quagmire into which you persisted in going. "Why" not come out boldly at the first offence and at the first trampling upon your rights assert your manhood and professional standing, for right is right and wrongs no one? "Why" not go through life bearing the load which the contingency of the times has thrust upon us and bear it with honor—a credit to ourselves individually and to the profession as a whole? The time is not far distant when

we as a profession will become the guiding-star of a whole nation. As sanitary humanitarians, are you in a condition or are you preparing yourself to share your portion of the burden? If not, why?

You are certainly not doing it by showing your preference for the literature contained in horse journals and agricultural magazines, when our professional ones contain so much that is not only beneficial in an educational way, but interesting not alone by its association but on account of its true worth. "Why" is it, in the face of this fact, that only one in every four North American veterinarians subscribes to and supports his own professional literature? It is true our country has been bordering on a panic which, thanks to the keen foresight and business-training of the American people, has been averted. Yet is that just cause for your making an auction mart of your profession? If not, why do you offer bargain-counter prices? Prices which you well know when once cut are so difficult to restore in times of prosperity? "Why" do veterinarians aim to establish prices for surgical work that are no just compensation for the skill required, and which cannot do otherwise than lessen the worth of the work in the eyes of laymen and the general public? "Why" will you take contract work at prices that are not half compensating, and thus lessen the volume of income to yourself individually and lower the estimate value of the work generally?

"Why" do veterinarians, many of whom have been educated at the supposedly better schools, feel that quackery is a paying branch of what would otherwise be a wholly honorable profession? "Why" do they feel that placards bearing pictures and self-laudations, wholly unprofessional in appearance and work, when they only tend to lower them in the public estimation? "Why" do we not impress upon the dairy people of this State the urgent need of stringent police measures and the enforcement of the same, that they may know all cattle brought into the State to replenish their herds are free from all infectious and contagious disease, when the losses already incurred from this source are assuming a serious aspect as regards the dairying interests, and threaten to become a barrier to the continuance of the valuable control-work now going on—work which at this time must not be stopped, and which can be best perpetuated by the veterinarians individually assisting it, for we live in deeds, not years; in thoughts, not breaths; in feelings, not in figures on a dial?

SOME OBSERVATIONS ON CONCEPTION AND PREGNANCY IN THE MARE.

By J. A. Dell, V.S.,
ANN ARBOR, MICHIGAN.

(Concluded from page 124.)

While the cessation of the periods of heat must be accepted as well-founded proof of conception, still there are cases reported where they have been said to reappear more or less regularly and still the mare be pregnant. In proof of the latter I have failed to establish anything definite. It is true that many mares have been bred to stallions in the usual way, yet given birth to foals from former service; but it is very doubtful, if allowed their freedom, that they would copulate. I have never seen nor can I find any record where mares running with a stallion have ever copulated when pregnant.

I now own a little Shetland mare, seven months pregnant, that, each day when turned into the paddock with other mares and the stallion, regularly goes toward the stallion, neighs, and shows what would ordinarily be taken as signs of heat, yet she will not receive him.

It is said that the bull, when allowed to run with the herd, refuses to give any attention to the pregnant cows, and I believe it is so with the stallion, if allowed to range with mares continuously. Even some stallions kept away as usual seem to know by instinct and refuse to serve a mare in foal.

An instance of that kind occurred in our city a few years ago. A mare supposed to be in heat was brought to be bred. When brought near the stallion she evinced marked signs of heat, yet he refused to serve her, and the owner took her away, disgusted with the stallion, yet in less than two months she gave birth to a strong, healthy foal. But I doubt if that mare had been turned with a stallion used to ranging with mares if she would have copulated.

I am of the opinion that the so-called heat is rarely much more than nervousness. With mares well broken, as most of our horses now are, and the usual amount of force, they submit to service when they would not if allowed their liberty.

Some writers have attempted to prove this as well as superfœtation by mares giving birth to a horse and a mule foal from covers

several days apart; but when we remember that one heat may continue for nearly three weeks, it is safe to assume that both services were during the one heat.

Following the cessation of heat we have the material signs, such as increase in the volume of the abdomen, tendency to fatten, changes in temperament, etc., to all of which I have failed to add anything reliable. In fact, I have failed to establish anything definite from them, as food, attention, and surroundings conduce to the same conditions; and, as I have before stated, it has all but too often been the case in the past decade that a hay colt has resulted from a high-priced service.

With all due respect to our writers and teachers who place great reliance on some of the above symptoms, together with measurements of the abdomen, increase in weight, examination of the urine or examinations per rectum or vagina, or through the abdominal walls for the tumorous condition of the gravid uterus, I believe there is one, and only one, true sign of pregnancy in the mare on which the veterinarian can risk his professional opinion; that is, life in the fœtus, and it devolves upon us to discover how and how soon we can be able to detect that important period.

You are all well aware that, due to the action of the panniculus carnosus, the thickness of the walls, together with the normal sounds in the abdomen, the stethoscope, so valuable an instrument in examining the human patient, is entirely impracticable in the larger veterinary patients; neither are we able to detect anything during the early stages of pregnancy with the naked ear. Thus our observations are narrowed down to the one sensation, that of touch. Fleming gives three modes by which the fœtus may be felt in utero: "By the vagina, the rectum, or through the abdominal walls."

The first I should name as the most unsatisfactory; the straining that follows examinations of the vagina is disagreeable, to say nothing about the danger that may follow in some very sensitive mares; while I have never been able to detect anything more than the distended uterus, except in cases very near parturition, and sometimes not then, as the fœtus had settled low in the abdominal cavity, and nothing but the fluids distended that part.

That by the rectum, while much safer, is likewise very unsatisfactory. Fleming states that after three months the tumor-like gravid uterus can be felt by this means; but when we take his statement that at that time the fœtus of an ordinary sized mare is six inches or less long, that the envelopes are from four to eight

times the weight of the fœtus, and that the fluids are from six to ten times its weight—surrounded by all this, covered by the walls of both uterus and rectum—the man who can detect it with certainty has a far more delicate touch than I have been able to cultivate.

If the fœtus exhibited life at that period, we would have but little difficulty in deciding; but when we are informed that the human mother first observes life in her unborn child at about four and one-half months, or midterm, how can one expect to detect it in the mare through so much intervening media at an earlier period? Besides, as we are all aware, as the fœtus grows in size its weight tends to carry it lower in the abdomen, and by the time it has acquired size and strength enough to exhibit much movement it has sunken so low that it is nearer the inferior abdominal wall than the rectum, as all of us have found who have made post-mortems on pregnant mares that were nearly half-gone. When opening the abdomen the first thing met was the gravid uterus, and this position I believe it assumes about the close of the fourth month of pregnancy, displacing all other viscera, and rests directly on the abdominal walls, and for these reasons I have found the rectal examination difficult and very unreliable.

Before entering upon modes of external examination let us first consider the position of the fœtus in utero, that we may have a better idea of what part of the fœtus we expect to meet and at what part of the maternal abdomen we shall be most liable to first feel it. I agree with all those I have consulted that the normal position of the fœtus in the mare is one or the other of the cornu, with the head directed toward the cervix, and that position I believe it maintains during its entire period of development. As proof of it, I never made a post-mortem on any pregnant mare and found it differently; also in premature births that presentation is as constant as in full-term births; and, again, in mummified, immature fœtuses that I have removed I have found them in that position That the fœtus lies on its side or back, with its hind feet extending forward into the cornu of the uterus during its development, and turns itself only at the approach of parturition, as some of our best authors state, I do not believe, for in all post-mortems I have found the fœtus resting on its abdomen with front and hind feet curled under it, and further on I will give other reasons to substantiate my theory; also that the fœtus rests more in a sitting posture until well developed—that is, its posterior

extremities rest nearer the abdominal walls of the dam than the anterior.

After discarding both vaginal and rectal examinations I gave more attention to manipulating the abdomen. In this way Fleming claims it is not reliable before the seventh or eighth month, and I am not surprised that he did not detect life earlier if he followed the directions he gives. He says: "place your hand on the abdomen just in front of the mammary glands." Now, when we stop to reason, would that be the point at which the gravid uterus in its descent would be first to touch the abdominal walls? The cornu in which the fœtus develops has its anterior and posterior attachments, and in its normal state it forms the segment of a circle, the most dependent part above or anterior to the umbilicus, and is it not reasonable to suppose that as it enlarges it would settle down from that point, and in that region we must look for the earliest indications of life?

In my earliest examinations, by exercising a little patience, I found no difficulty in detecting life at seven months, the motions at that period being of the nature of a small plunge or jump; I liken them to the actions of a small pig in a sack. Taking notice of the minor motions, and making examinations of all cases I met where the time was known, I soon found at six months I could readily detect life; but the motions at that period are less strong and can be said to be a quiver or flutter, likened to a fowl in a sack.

When I became conversant with the movements of a six-months' fœtus I was led to believe that it was not for lack of movements that we could not detect life earlier, but to our inability to recognize the delicate movements. In 1894 I had mares of my own at my stables constantly, and I examined them two or three times a week, and the earliest I was able to be positive that year was five months and six days. But now I can recall observing movements earlier that I have since proved to be definite signs.

The past season I have had similar opportunities, and I began my examinations as early as three months, but was not positive with the first until the even five months; but in the second I detected movements at four months and twenty-six days, while later I was positive of movements in one at four months and nineteen days and another at four months and eighteen days. What was very interesting to me was, after making these early detections, to examine them from week to week thereafter and note the increase and strength of movements as the period increased.

The movements at four months and eighteen days vary as much

from movements at five months as those from six to seven months, or seven to eight months, etc.; and, while we may never be able to detect positive life earlier than this minimum period, I do believe that with frequent opportunity for examination and the cultivation of our sense of touch we may become so well acquainted with the different movements as to be able not only to detect pregnancy, but to give a reasonable opinion as to what stage it has reached.

When making an examination I stand at the side of the mare. I prefer the left, as I seem to have a more correct touch with my right hand. I place my hand in the median line, at or just in front of the umbilicus. The very earliest movements I have felt nearly as far forward of the umbilicus as it is forward of the mammary glands.

The earliest movements I liken to the sensation we would receive by covering the palm of the hand with several folds of cloth, then touching it with the tips of the fingers of the other hand, one or two at a time, suddenly changing to the other tips, so as to give a sensation of little thumps or steps, or liken it to the feet of a cat stepping on your bed-cover, only more sudden changes. These movements, I believe, are made with the hind feet or hocks, and convince me, as I stated before, that the fœtus rests in a sitting posture and that the posterior extremities settle and reach the floor of the abdomen first.

At about five months the movements are felt further back and seem more complicated—that is, more touches as with finger-tips—and stronger, and with them we detect a slight quiver. The former, I believe, can be attributed to the enlarging and settling of the fœtus, and we get some of the movements of the fore-feet, while the quivering I believe to be the beginning of the body movements.

At six months these increase in strength, and at about that time we can detect a slight jumping sensation. The latter increases quite rapidly until, by the beginning of the seventh month, the fœtus acquires so much strength that there is little difficulty in detecting it by placing the hand on the lower part of the abdomen. During the eighth month, and sometimes earlier, by close watching we can see movements at the flanks, and these increase in force until, as many of us have observed, they seem to shake the whole body of the dam.

I believe life can be discerned a little sooner in mares that grow large early, as the muscles of the abdomen are then thinner than those that have smaller and harder abdomens. As the best time

of day to examine, I have failed to discern much difference; the most of mine have been in the evening after feeding and watering. I have had my best success if I could catch them lying and examine them just as they got on their feet. After drinking of cold water or eating of food, particularly if of a nature to generate much gas, I find a good time. One condition I have observed—that is, if I find marked peristalsis I do not have to wait long to get movements if the fœtus be sufficiently developed.

ABORTION IN DOMESTICATED ANIMALS.

By Charles F. Dawson,
VETERINARY INSPECTOR, BUREAU OF ANIMAL INDUSTRY.

(Concluded from page 127.)

The earliest accounts of infectious abortion in the domesticated animals were written as far back as the third century before the Christian era; from that early time down to the present the disease has existed in a more or less severe form, often amounting almost to a scourge in stock-raising countries, and has received the attention of the ablest veterinarians of all times.

Professor Nocard made an extended study of the subject, and his report to the French Department of Agriculture shows him to be a strong advocate of the theory of the infectious nature of the disease. Another French veterinarian, Professor Lebat, showed his belief in the infection-theory by treating a flock of aborting ewes by means of local applications of antiseptics to the vulvæ of all the pregnant ones.[1]

In the report of the United States Department of Agriculture for 1883 Dr. D. E. Salmon wrote as follows: "This disease, which evidently depends upon some form of contagion for its causation, has been estimated to produce an annual loss in the State of New York alone of several millions of dollars. If, as seems likely from our general knowledge of the contagion, the germs of this disease are first scattered upon the stall-floors and upon the ground where the cattle run, to be taken into the system by soiled food, by the dust which rises and floats in the air, or in some similar way, then a thorough and continuous disinfection of the stables and runs should have a very marked effect in controlling it. In one rather

[1] Recueil de Méd. Vétérinaire, September 15, 1896.

large and plainly infected herd I have put this idea into practice with the happiest results, the disinfectant being a 1 per cent. solution of sulphuric acid."

Judging from the numerous articles upon the subject which have appeared in the *Agricultural Journal* of Cape Colony, Africa, the disease must be quite common in that country. In one of these articles[1] Mr. Hutcheon, the Colonial veterinary surgeon, says in discussing the probability of the infectious nature of the disease: "Practically, however, all cases of abortion should be treated as if it were a contagious disease, for while many individual cases may occur which do not affect others, it is an undoubted fact that abortion very often becomes infectious, and, if precautions to prevent its spread are not taken, serious losses are certain to follow."

An important paper upon the subject of infectious abortion was written by Dr. W. L. Williams,[2] who was appointed by the department to investigate the disease. Dr. Williams tabulates ten cases in which he gives the details of certain experiments undertaken to prove the infectiousness of material removed from the vaginæ of aborting mares. His experiments fail generally, however, to prove what he wished, he having caused only one animal to abort under conditions which could leave little doubt that the abortion was caused by the introduction of utero-vaginal discharges into the vulva of another pregnant mare. This mare aborted thirty-one days after. The period of incubation here seems to be a great drawback to the theory he advocates. It is difficult to understand why the material he introduced into the vulva did not manifest its pathogenic property in a shorter space of time. Dr. Williams states that the weather was unprecedentedly warm during the experimentation. This being the case, and as no mention is made of any extra precautions taken to prevent the multiplication of saprophytic bacteria in the material used, could we not reason that the hypothetical organism of abortion is one which quickly loses its virulence when associated with rapidly growing saprophytes in material rich in organic matter? In the one case where he produced abortion mention is made that the material was immediately transferred from the uterus and vagina to the vulva of the experimental mare. This one successful experiment in ten is, however, offset by a failure to produce abortion by the use of some of the same material under the same conditions in another mare. Could not this failure

[1] Agricultural Journal, vol. iii. No. 13, p. 326.

[2] Sixth and Seventh Annual Reports of Bureau of Animal Industry, Department of Agriculture, pp. 449–456.

be explained on the theory of lack of susceptibility? Could not his failures, generally, be explained on the same theory? All the animals used, with one exception, and the author does not say whether this exception was the one in which abortion was induced, were from a herd of unbroken Texas mares free from abortion. The excepted mare had been in the State of Illinois, where the experiments were carried on, for some time previous to the introduction of the others, and had been in foal twice by a native horse. Might not the results have been different if the experimental animals had been selected at random from native Illinois stock?

Bernes[1] reports an outbreak of abortion in a herd of cows which he successfully combated by measures based on the assumption that the disease was caused by infection. By removing the affected and healthy animals to separate buildings and thoroughly cleansing and disinfecting the building in which the outbreak occurred no more abortions took place. All the cows were served by the same bull, and one of them had a vaginal discharge a few days after being served. Indications point to the probability in this outbreak of infection having been carried by the bull. The number of exposed animals was quite large—fifty-two in number—while the reported number of abortions was only nine.

We have recorded many instances where this disease, like many others, raged for a while and then disappeared spontaneously. Would not this outbreak have conformed to this rule regardless of the sanitary measures adopted? It seems plausible that others should have aborted, did we not know that an outbreak of abortion is somewhat self-limited in character. It is very probable that the specific agent is one which loses part of its virulence from contact with the blood and utero-vaginal secretions. That the glands in the mucous membrane secrete a fluid which has germicidal properties seems plausible, from the fact that others, as well as myself, have failed to get any growth in the ordinary bacterial culture-media after placing in it material taken from the uteri of animals in health, to which the male had not recently had access.

Dr. T. J. Turner,[2] in his article upon infectious abortion in mares, records the results of certain experiments made upon pregnant mares to produce abortion. On June 6th Dr. Turner introduced into the system (method not given) of a pregnant mare near term a culture made from diseased fœtal membranes from a case of abortion. The mare foaled the following night. Dr. Turner says:

[1] Journal of Com. Path. and Therapeutics, 1891, vol. iv. p. 167.
[2] The Veterinary Journal, vol. xxxvii. 1893.

"On June 29th the foal showed signs of joint-trouble in the right knee, and on July 1st the hock-joint was as large as a man's head. Thus, from this experiment, almost just begun, we might say, Do we produce the disease in a colt that when born was apparently in health, and that, too, after the inoculation had only been introduced a few hours? Another mare, a dun, inoculated with a culture from the blood of Biddy Mac's colt (culture used in the other experiment was from fœtal membrane of same case. C. F. D.) on the 20th day of June, gave birth to a dead foal. This was an abortion, as evidenced by the diseased placenta. Hence we see that from these two inoculations with cultures we have produced both the diseases —abortion and joint-trouble. The germs causing these two diseases are the same, as shown under the microscope. That these two maladies are one and the same disease, but differently manifested, there is no doubt."

In the absence of more details concerning the experiments made by Dr. Turner we cannot accept his work as conclusive evidence that the case of abortion which took place, apparently the result of the introduction into the system of a pregnant mare of a culture of bacteria from the blood of a dead fœtus, was due to a specific organism. It is possible that the severe arthritis from which the offspring of the first experimental mare suffered may, as he claims, be due to the presence in the affected joints of an organism identical with the one he claims was the cause of abortion in the other mare. His statement claiming such identity, however, must be sustained by more evidence than a similarity in the morphology of the organisms.

Dr. F. L. Kilborne[1] investigated an outbreak of abortion in the mares of a large stud near Franklin, Pa. He says in his report: "No history of any introduction of the infection from without could be obtained beyond the fact that mares were daily being received at the stock-farm from various parts of the State, to be bred to the stallions of the stud. But as far as could be ascertained no mare had been received from any stable in which abortions had previously occurred. The veterinarian in charge of the stables had taken the usual precaution to remove the aborting mares as soon as discovered and to disinfect the stall. Such mares were disinfected per vaginam by repeated injections of a diluted solution of corrosive sublimate, 1 part to 10,000 of water, and the external organs, tail, and hind limbs sponged over with a strong

[1] Bulletin No. 3, Bureau of Animal Industry, Department of Agriculture.

solution, 1 part to 1500 of water. The stable had also been repeatedly fumigated with burning sulphur. Fluid extract of black-haw (*Viburnum prunifolium*) in half-ounce doses once daily had been given the pregnant mares during the month preceding February 5th. In this outbreak the first case of abortion occurred on December 2d, the birth being premature by 109 days. Up to the time of Dr. Kilborne's first visit—February 5th—ten cases had occurred, ranging in prematurity from 23 to 195 days. In addition to the sanitary measures already practised by the resident veterinarian, Dr. Kilborne advised a more thorough disinfection of the stalls with a 2 per cent. solution of sulphuric acid. The abortions ceased from January 29th to February 15th, when another outbreak occurred, lasting till March 4th, six mares having aborted. It was then decided to take additional precautionary measures to check the outbreak. All pregnant mares were removed to another building. The floors of the stalls were thoroughly cleansed and disinfected with a 2 per cent. solution of sulphuric acid twice a week. The external genitals and tail were washed daily with bichloride of mercury solution. Intravaginal injections of the mercury solution caused the animals to strain, and were discontinued. Half the mares were given once daily one-half ounce of the fluid extract of black-haw in addition to the sanitary measures taken. The remaining half of the mares received in the feed one heaping teaspoonful of the following powder-mixture twice daily for two weeks, when it was omitted for four or five days: chlorate of potassium, phosphate of sodium, of each one pound; and sulphate of quinia, three ounces. This treatment and the rigid sanitary measures seem to have quelled the outbreak, no more abortions occurring till in the fall, when three of the mares brought in from the pasture and stalled in a small barn with several others aborted. This new outbreak was checked by a repetition of the treatment and disinfection measures employed in the former outbreaks.

A bacterial culture was made from the vaginal mucous membrane of one of the cases by Dr. Kilborne, and experiments were projected by Dr. Theobald Smith to determine the presence in it of a bacterium which had pathogenic properties. The culture obtained proved upon examination to contain only a single species, a short motile bacillus. Cultures in peptone-bouillon were made from the original culture, and were injected into the vagina of a mare nine months pregnant, with the result that in twenty-four hours the mare had an abundant purulent vaginal discharge. The discharge

ceased in two days. This experiment was spoiled by the mare developing a severe case of influenza. She foaled in about a week after the injection, probably the result of the attack of influenza.

Intravaginal injections in several pregnant cows did not give any positive results, with the exception of a temporary vaginal discharge.

Intravenous injections of this bacillus into hogs caused only a temporary anorexia. Inoculations made into rabbits of this bacillus proved fatal in three out of four cases, the animals dying of a disease simulating hog-cholera in rabbits. Dr. Smith inclines to the belief that on account of its pathogenic properties and its cultural characters that the organism obtained from the case of abortion in a mare is closely related to the bacillus of hog-cholera. He says,[1] in discussing its peculiarities: "Another fact of interest in connection with this pathogenic bacillus is its close resemblance to the hog-cholera bacillus . . . and if the bacillus in question had been sent me as having come from swine I should not have hesitated to regard it as a hog-cholera bacillus of rather feeble virulence, and possessing some slight differential characters from the virulent form."

In order to determine whether this bacillus is present in the genital passages of healthy pregnant and non-pregnant mares, Dr. V. A. Moore made a series of observations upon the vaginal secretions of five healthy mares, one of which was pregnant. These observations are recorded in Dr. Smith's report. Dr. Moore isolated eleven species of bacteria of the following genera: two species of non-motile bacilli; four species of micrococci; and five species of streptococci. Neither of the species of bacilli had characters which would show they were identical with the bacillus of which Dr. Smith wrote.

Recognizing the importance of having an intimate acquaintance with the normal bacterial flora of the genital passages as a prerequisite for the future investigation of infectious abortion in animals, I, at the suggestion of Dr. V. A. Moore, undertook a series of observations to determine those forms normally present in the vaginæ of cows.[2]

My method for collecting the vaginal secretions was as follows: a cotton applicator, made by twisting absorbent cotton round the roughened end of a piece of stout copper wire, was thrust into a test-tube through its cotton-wool stopper. The whole was placed

[1] Bulletin No. 3, Bureau of Animal Industry, Department of Agriculture, 1893, p. 58.

[2] The description of the biologic characters and the drawings of these organisms are reserved for a future communication.

in a sterilizer kept at 140° C. for one hour. This proved an excellent means of transporting the secretions free from contamination. When the sample was to be taken the external genitals and under the surface of the tail were thoroughly washed with a $2\frac{1}{2}$ per cent. solution of carbolic acid, followed by a bath of sterilized distilled water and dried by means of sterilized cotton-wool. An assistant held the tail to one side, the labia were separated, and a speculum, anointed with carbolized vaseline, was introduced and held in place by an assistant. By opening the speculum the interior of the vagina and the os uteri could be plainly seen, and the applicator could be applied to the parts and bring away secretions it had absorbed during contact. Upon reaching the laboratory the applicator was removed from the tube, and twirled around in a flask of about 50 c.c. of melted agar. By this means any bacteria which were removed from the vagina in the meshes of the cotton were washed out. The infected agar was then poured into a double dish ten inches in diameter and similar to the ordinary Petri pattern. By the use of this size dish ample room was given for the development of a large number of different organisms from a single inoculation. From the large number of species from bacteria which these observations show are present in the bovine vagina, and the infrequency of the occurrence of the same species in different observations, it would seem that the flora of the bovine vagina is either very extensive or that the presence of such large numbers of species is accidental.

If we admit that they gain entrance to the vagina from the ventral surfaces of the tail and from the soiled vulvar surfaces, it would seem that most of them came from the feces.

Upon reflection we find that the rumen is a most admirable bacterial incubator because of the fact that in this portion of the alimentary canal the very conditions exist which are necessary for the development of bacteria—*i. e.*, warmth, moisture, and an alkaline reaction. Flourens has shown that fluids pass with facility from the rumen into the other three stomach divisions, and might we not, therefore, expect to find a very large number of species of bacteria by this means washed from the stomach into the intestine and appearing in the feces of these animals?

It is only in the abomasum, fourth or true stomach, that we find conditions that are inhibitive to the multiplication of swine-bacteria. When a ruminant swallows water some of it passes without much delay into all four of the stomach-divisions. It is probable that many of the bacteria are thus washed into the fourth stomach,

and that their sojourn there is of short duration, many of them passing through the pylorus with the chyme into the intestine, where conditions are more favorable for their multiplication.

It would, therefore, seem that the number of species to be found in the bovine vagina is limited in a measure by the number of species swallowed with the food.

The observations were made upon perfectly healthy cows which were not known to have been in contact with a male for some time previous to my operations.

By the method given above forty-five species of bacteria of the following genera were studied: twenty-one species of bacilli, thirteen of which were motile, two of them being spore-producers, and eight of which were non-motile, two of these being spore-producers; seven species of micrococci, seven species of diplococci, eight species of staphylococci, and one streptococcus.

ABSTRACT OF PAPER ON ABORTION.[1]

By R. J. MacGuire, V.S.,
CONCORD, N. H.

First referring to the disposition of most cattle-owners to ignore veterinary assistance, which has contributed to its extension, perpetuation, and great losses, and passing rapidly over the accidental traumatic causes, he dealt more particularly with the form recognized as infectious and the period in the mare most often noted—the 120th to the 270th day; in the cow from the 150th to the 210th day. As to its infectious character he quoted from the researches of the Royal Agricultural Society of England, which recognized a specific cause for the trouble; also to Denmark's investigation of this disease through the veterinary profession and their conclusions as to its infectious character, noting the conclusions of Ex-State Veterinarian Turner, of Missouri, as to its micro-organismal origin. His own conclusions were given as to bulls being the most potent method of transmission through their covering cows which had aborted, and then transmitting it to others through service of other animals; the absence of premonitory symptoms in the cow and the only noticeable ones of slight uneasiness, stamping, and switching of tail in mares. As to treatment, the wisdom of local dis-

[1] Read before the New Hampshire Veterinary Medical Association, October 8, 1896.

infection through destruction of the young fœtal membranes and local cleansing of the parts daily of the aborting animals with a 1 per cent. solution of carbolic acid, a 1 to 1000 parts solution of corrosive sublimate, or a 2 per cent. solution of creolin; separation of the sick from the well, though he thought this was of little real value on the average farm, owing to the lack of proper accommodations for carrying it out. He urged suitable legislation looking to its control.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

PECTORAL FORM OF SEPTICÆMIA HEMORRHAGICA. According to the investigation of Van Eecke, in the last six months a contagious cattle-disease broke out in the districts of Bintenzorg and Mt. Connelis, which caused many deaths. The government veterinarian Fischer published a detailed report of the same which appeared in the *Veeartsenijkundige Bladen*.

The disease assumed here and there a malignant character. In the district of Tjibaroesa, where the disease seems to have first appeared, of about 500 buffaloes 100 died on a single ranch within a short time (September to October), while on many other ranches the death-rate reached 10 per cent. The total number of deaths in the department mentioned was estimated at upward of 700 out of a total of 14,000 buffaloes. From the nature of the case, such an estimate is too low. The interests of the cattle-owners demanded that the existence of the disease be kept secret. Many of the infected animals were slain in the early stages in order to place them on the market. Herr Fischer, who made the post-mortem examination of the first case, makes the following report: The animals lay apathetic on the ground and refused food and drink; wounds of any kind were not observed. The nutrition of the young animals was very good; breathing was rapid and labored; the pulse was increased and weak. The temperature of the body was to the touch considerably elevated. The nostrils were dry; the eyes appeared sunken, and the conjunctivæ were colored red; he noticed tears flowing from the eyes. With the consent of the owner, the animal was killed that a post-mortem might be held. On account

of the good condition of the animal only a little dark blood flowed off. When the skin was removed minute hemorrhages presented over the whole body, being especially prominent in the muscles, which were dry to the touch. When the abdominal cavity was opened nothing abnormal in the position of the intestines was noticed. The injection of the bloodvessels was especially marked. The thoracic cavity, on the other hand, showed important changes. On opening the cavity about one litre of clear yellow serous fluid flowed out. This quantity was considerably increased when a sero-fibrous layer, 2 to 3 cm. thick, was removed from the rib-wall. This layer formed an inner connection between the rib-wall and the lung, and covered all parts of the pleura to a greater or less extent, except the diaphragm, which with the exception of red spots and stripes upon it was normal. The sero-fibrous layer, which was at first 5 cm. thick, decreased in consequence of the escape of fluid to 1 mm. The lungs, after the layer was removed, were found spotted and striped dark red. This was most noticeable on the front half. They were not shrunken, but very friable and tore easily, a serous bloody fiuid flowing off. On the inside the lung presented a marbled appearance which was caused chiefly by obtrusion of the interstitial tissues. Light yellow streaks were found through the whole lung, the thickness of which varied between 2 mm. and $1\frac{1}{2}$ cm. On pressure liquid exuded from them and the thickness was reduced to 1 mm. or less. The tracheal and bronchial mucous membrane was dark red over the whole surface and covered with a foul-looking layer of slime. The mucous membrane of the mouth and nose was somewhat injected with blood, that of the throat a dark color. The pericardium contained a small quantity of liquid, while the peri-, epi-, and endocardium showed dark-red spots. The wall of the heart was flabby and the cavities filled with large white coagulations which were floating in the dark-colored blood. The coagulations extended to the large cavities. The pouch and stomach were filled with free, hard food-stuff. The mucous membrane of the intestines was somewhat hyperæmic, the contents thin. The capsule of the spleen showed some spots. The spleen was not enlarged. The liver was slightly spotted, as were also the kidneys, but otherwise the latter were normal. The chylous glands of the intestines were somewhat enlarged and exuded liquid when cut. The bladder was normal. The provisional diagnosis was a pectoral form of hemorrhagic septicæmia. In the course of the contagion more than twenty post-mortems were held. In all were found to a greater or less extent the deviations in the thoracic cavity

mentioned above. When these were slight, changes in the abdominal cavity were marked. Here hyperæmia and swelling of the mucous membrane of the whole digestive tract were present. In places a peeling off of the epithelium was noticeable, but without ulcers and not affecting the follicular apparatus. The first three stomachs were filled with hard, dry food, and the intestines with thin pappy matter. The peritoneum had a spotted appearance, yet even where the abdominal cavity was most severely affected the color of the intestines was such as to exclude all possibility of splenic fever. The liver was normal in size and dark-colored, spotted, and very brittle. The gall-bladder was spotted dark-red and filled with dark gall. The spleen was not enlarged, of normal consistency, with the capsule spotted dark-red. The kidneys, of normal size, were dark-red with black spots here and there. The mucous membrane of the genito-urinary apparatus was spotted and striped with red. The urine was not bloody. Besides the above-mentioned, other forms of the disease appeared which were given various names by the people. Fischer saw only a couple of these cases. They were marked by a severe œdema of the subcuticle which was present on the neck, over the breast and belly and a portion of the limbs. These appearances agree with those of the cutaneous form of Bollinger's cattle epidemic, which was the subject of a prior investigation by Van Eecke. The appearance and disappearance of the œdema contemporaneously with the pectoral and abdominal form, as well as the striking likeness in the conditions on post-mortem examination, caused Fischer to incline to the opinion that they are connected etiologically with each other and must be considered as septicæmia hemorrhagica. As soon as a favorable opportunity offered to send some fresh material to the laboratory for investigation, use was made of it by the officials in charge. The material received was examined by Van Eecke, from whose results we take the following: The case under consideration was one in which a diagnosis of pectoral form of septicæmia hemorrhagica had been made. The material for investigation reached the laboratory a couple of hours after the post-mortem, and consisted of blood from the large vessels and a piece of the sero-fibrinous mass, described above, from the thoracic cavity. A very small quantity of the blood was injected in the skin of a rabbit. The following day the animal was found dead. On examination the condition was the same as Van Eecke has described. Although it was a case of the pectoral form of the disease, no important changes in the pectoral organs could be demonstrated. From the blood of the original

buffalo, as well as from the blood in the organs of the rabbit, microbes of septicæmia hemorrhagica were cultivated and their identity established by continued culture- and infection-tests. Through lack of rabbits no further tests could be made with these animals. Later, however, some of these animals fell a victim to this disease in consequence of accidental infection. They were probably infected by the excrement of artificially-infected doves whose cages hung above the rabbit warren. On post-mortem examination the following conditions were noted: subcutaneous œdema in the submaxillary and neck region (but only in two of the four animals), combined with hemorrhages in the region of the shoulder and groin. A moderate quantity of clear, serous fluid was found in the peritoneal and pleural cavities, and a considerable quantity of the same fluid in the pericardial cavity. The heart had stopped beating in diastole. Hemorrhage and œdema were present in the lungs, which sunk in water. Tracheitis hemorrhagica present. The spleen of normal consistency, but somewhat enlarged; hyperæmia of the liver; swelling and œdema in the kidneys; hyperæmia in the mucous membrane of the œsophagus, stomach, and duodenum. The small intestines contained a light yellow, slimy matter. The rectum was empty, or contained thick, greenish-brown feces. The retroperitoneal glands swollen and sappy. The bladder distended with muddy urine. In the blood of all the animals the presence of septicæmia hemorrhagica microbes was demonstrated not only microscopically, but also by culture- and infection-tests. The infection-tests were made especially on turtle-doves (*Turtur tigrimis* and *bitorquatus*), animals of little value and easily procured, which react in a typical manner after intra-muscular injection of the virus. The serous fluid from the sero-fibrinous mass taken from the pectoral cavity of a buffalo was also injected into a turtle-dove, with positive result. Under the microscope this fluid seemed to contain the bacteria which cause the typical discoloration, in great mass. These were also cultivated and other animals infected with the cultures with positive result. In some cases pectoral changes were found after death, but in the majority of cases none. When material from a dove that had died of the pectoral form was injected into another dove the latter almost always showed the pure septicæmic form. Even in the earlier tests also, where the original infectious matter was taken not from the pectoral but from the cutaneous form of the disease, Van Eecke found in single cases some sharply-defined bloody spots in the lungs which otherwise showed no deviation from those of healthy doves.

Tests were also made on mice, rats, sparrows, and a pair of goats. The mice died in from one to two days after the injection. In the case of the rats the result was less satisfactory Some were infected by subcutaneous injections, others through the food. They died after one to three days, and showed on examination the phenomenon of pure septicæmia hemorrhagica. But the investigator did not succeed in finding the specific microbes. The sparrow died within twenty-four hours after an intra-muscular injection of 0.15 cm. of the bouillon-culture. It was followed by marked change in both lungs and the hydropericardium; many septicæmia hemorrhagica bacilli were found in the blood with the microscope. One of the goats was infected subcutaneously with an agar-culture divided in bouillon from the serum of a buffalo; the other with the blood of one of the doves which had died from the disease. Both showed only a slight swelling at the place of injection. As bases for cultures alkali pepton bouillon and with it "glycerin-agar" were used mostly. Of importance, with a view to sending out plates of material for investigation from the laboratory, is the fact that from the blood and the serous fluid of the buffalo which is preserved at a temperature of 15°–20°, virulent septicæmia hemorrhagica microbes can be obtained after a week. From these investigations of Fischer and Van Eecke, the assertion of the latter, that much of what is generally regarded here in the country as cattle-pest is in fact nothing but septicæmia hemorrhagica, has not yet been fully proven. What Duessen wrote about the contemporaneous appearance of œdematous, gastric, and pneumonic forms of the cattle-pest should be compared with Fischer's report, and one will come to the conclusion that both have had to do with the same disease. — *Veeartsenijkundige Bladen voor mederlansch-indie*, vol. ix. No. 4.

The *Clinica Veterinaria*, of Milan, records the diagnosis of fracture of the sesamoid bones with the Röntgen rays.

FRENCH.

UNDER THE DIRECTION OF ALEXANDER GLASS, V.S.,
PHILADELPHIA, PA.

A REPORT ON THE EXPULSION OF THE ŒSTRUS EQUI LARVA (BOTS) FROM THE HORSE. Professor Perroncito, of the Veterinary College of Turin, thinks that the larva of the œstrus can be expelled from the horse by means of bisulphide of carbon administered in

gelatin capsules. The antiparasitic properties of the drug have been fully demonstrated in the destruction of the phylloxerilla.

There have been two reports made on this subject by Dr. Tosegni, veterinarian to the breeding establishment of Grosseton, which are very interesting. In the first report Dr. Tosegni picked out fifteen colts whose general condition indicated the presence of the œstrus larva, which was further confirmed by the fact that they passed several of them per anum. A number of capsules, each containing 12 grammes of bisulphide of carbon, were prepared; four were given to each colt, making in all 48 grammes, and they were fed their ordinary quantity of food; on the following day they were each given a purge of castor-oil. One hour after the administration of the medicine they all had an abundant secretion of saliva and constant movements of the muscles of mastication; three of the colts showed considerable nervous excitement, and all showed more or less depression some time after the drug had been administered. Three days after the administration of the capsules the expulsion of the larva commenced. The parasites were all dead when expelled. Each colt passed numbers varying from 15 to 56, the whole number passed by the fifteen colts being 592.

A second report by the same veterinarian, in which he followed the same treatment in six colts, but from his former experience when he found all the larva dead the purgative was omitted. On the third day the larva commenced to pass from the animals, and varied in number from 3 to 105 for each animal.

Another Italian veterinarian, Dr. Bugarli, followed the bisulphide of carbon treatment in two horses that were out of condition and showed want of nutrition and several of the larvæ were passed per rectum. He administered three capsules of bisulphide of carbon each containing 10 grammes of the drug, and followed it up the next day by a purgative. One horse passed 238 and the other 23.

These observations prove the efficacy of bisulphide of carbon in expelling the œstrus larvæ from the stomach, and from the above experience Dr. Perroncito thiks that the dose should be 10 grammes for horses and 8 for colts, administered in gelatin capsules. —*Giornaledella Reale Societa ed Academia Veterinaria Italiana*, August, 1896.

The Cook County (Illinois) Agricultural Society strongly indorses the movement to establish a State Veterinary College, and recommends its location in Chicago, owing to the great clinical facilities offered.

REPORTS OF CASES.

I. FOOT-LAMENESS. II. FECAL STASIS.

By H. P. Miller,
STUDENT, OHIO STATE UNIVERSITY HOSPITAL.

I. *Subject:* Bay draught-mare. *History:* Lameness developed suddenly while at work; grew steadily worse. *Symptoms:* Limb free from swelling or tenderness to the touch; animal reluctant to place weight upon the foot; pulsation in bloodvessels leading to the foot well marked. On removal of shoe and paring out of sole a large corn was disclosed.

II. *Subject:* St. Bernard dog. *History:* Persistent constipation for three weeks; belonging to a physician, a large number of cathartic preparations had been given, with no results. *Symptoms:* Animal emaciated and weak, a hard mass about the size of two fists could be felt in the region of the flank. *Treatment:* Warm-water injections administered per rectum through a rubber tube attached to a can, the latter placed at an elevation of ten feet. Continuous flow until twelve gallons were allowed to flow into the rectum, with manipulation externally of the mass; only a few fragments came away the first day. After four consecutive days' treatment by irrigation the mass disintegrated and was flushed out. Its removal was followed by a return of appetite and favorable symptoms leading to recovery promised.

ACTINOMYCOSIS ON THE FINGER, TAKEN FROM A CALF.

By J. R. Snively, V.S.,
LANARK, ILL.

On October 22d last I was called to see a case of actinomycosis in a four-months-old calf. In catching the calf I was unfortunate enough to have quite a large piece of the skin knocked off my right forefinger. I opened the abscess and treated it; afterward washed my hands in a 3 per cent. solution of creolin, but the germ must have found entrance. The wound seemed to heal nicely for about ten days, when two small, red-looking tumors began growing. I cauterized these with carbolic acid, which seemed to have no

effect, and they kept growing. I then cauterized them with antimony chloride and at the same time took twice daily 5 grains iodide of potash with good results. About one month after they had healed they commenced to itch and raise up again. This time I used 10 grains twice a day of the iodide of potash, and have not been troubled with them since.

RETENTION OF FŒTUS IN A SHEEP.

By E. P. Niles, D.V.M.,
VIRGINIA.

I report herewith a case of retention of a fœtus in a sheep, not because similar cases are not on record, but because of the great length of time which the fœtus was retained.

Subject: A Dorset ewe, the property of the college farm. At one year of age it was thought that the ewe was pregnant, but date of breeding was not known. Some time later, however, the ewe showed less signs of being pregnant, and the manager, thinking that he had been mistaken about the ewe being in lamb, tried in vain to breed her for three years afterward, until February 24, 1897, the ewe being fat, she was slaughtered for mutton. Upon opening the abdominal cavity the butcher noticed that the uterus contained fluid, and was abnormally attached to the wall of the abdomen and a fold of the large intestine. What specially attracted his attention, however, was an unusually large nodule near one of the cornua of the uterus caused by the œsophagostoma columbianum. Being notified of the above condition I at once visited the slaughter-house. Upon opening the uterus a considerable quantity of a thin, fetid, apparently purulent fluid escaped. The os was firmly closed, and crowded well back against the os a number of small, flat bones (evidently the bones of the head), about the size of one's finger nail, were found.

The most remarkable thing in connection with this case is that fecundation took place three years ago, and that the ewe at no time showed any signs of parturition. Neither was the general health of the ewe at any time impaired to a sufficient extent to attract the attention of the attendants. At the time of slaughter she was exceedingly fat, and when hanging in the slaughter-house made as pretty mutton as one would wish to see. The carcass was condemned as unfit for human food.

CYSTOMA DERMALIS.

By L. E. Willyoung, D.V.S.,
BUFFALO, N. Y.

Case I. *Subject:* Cross-bred mastiff and hound, three years of age. *History:* Was unobtainable in detail, but swelling was present for over a year; opened repeatedly, always refilling again.

Entered at hospital February 1, 1897. Examination revealed a soft pendulous mass devoid of hair, with numerous old cicatrices on surface. Mass measuring over sixteen inches in circumference at its largest part, with a base attachment on the posterior aspect of the ulna measuring three and a half inches.

Fig. 1. Fig. 2.

On February 4th the dog was prepared for operation: a 5 per cent. solution of eucaine (methyl-ester) was injected hypodermatically and the mass removed, after making an elliptical incision on each side of the mass, vessels ligated, and skin sutured with gut. Borated gauze and iodoform dressing applied.

Upon dissection of cyst it was found to contain thirty-seven ounces of albuminous, straw-colored fluid, of alkaline reaction. Interior of cyst having numerous distinct cavities, walls of which consisted of fibro-cellular tissue, with endothelial lining. Weight of entire mass two and a half pounds.

Fig. 1 represents before operation. Fig. 2 fourteen days after operation, cicatrization nearly complete.

Eucaine was found to be an admirable substitute for cocaine, as no after-effects are noted from its use similar to the latter, while it is cheap and efficacious.

CASE II. *Subject:* A spaniel puppy, six months of age. Convulsions due to intestinal irritation; persistent spasms and periods of complete coma, approaching at intervals of four to five hours. Duration five days. Elixir of bromide of potassium and chloral hydrate, with but temporary success, followed by a hypodermatic injection of $\frac{1}{20}$ grain apomorphine. Through the emesis following three plum-stones were ejected, with partial abatement of convulsions. Two days later a 2-grain hydrarg. pill was administered, when in twenty-four hours three more stones were ejected per rectum and a complete abatement of the symptoms followed.

It was found that the puppy had been fed canned plums a few days previous to the attacks.

Those cases of painful forms of influenza seen so frequently in sale-stables, often as an enzoötic, with great soreness of the muscles on motion, œdematous extremities painful to pressure, and with a strong tendency to pleuritic effusions, are quickly relieved and the swellings dissipated by the free use of salicylates combined with iodides.

Where corn is burnt for fuel the charred grains are found useful for mixing with the food of swine, as charcoal helps to control digestive derangements incidental to fermentation of food-products.

And still another victim to the infectious proprietary medicine mania blooms forth in Greater New York, where he hopes to emulate the father of humbugs, the late P. T. Barnum, and where he believes a confiding public is standing with open mouths and outstretched hands to praise and purchase his "nothing-ever-produced-like-them" nostrums. The flood-tide is on, the tidal-wave return is gathering, and the shores will be covered with the wrecks of these Mulberry Sellers schemes.

A so-called colored veterinary dentist suddenly disappeared from Pittsburg when he learned through a member of the State Board of Veterinary Medical Examiners that a probable wrestle in the Allegheny County courts confronted him.

Another veterinarian of Western Pennsylvania has become a victim of the proprietary medicine mania. As yet the attack is only mild, attaining a cure-all healing ointment. Only wait until the bubble bursts.

EDITORIAL.

A WORD AS TO LEGISLATION.

We hear and receive many warm commendations on the progress of veterinary legislation in Pennsylvania, and we fear that there is a growing impression that we are specially favored in the Keystone State. We do not want to discourage any of the workers in sister States, but we feel it incumbent to say that we have learned well the adage that "God helps those who help themselves." Every concession in Pennsylvania has been won after a long, earnest, and persistent battle. The veterinary profession of the Keystone State has a number of tireless leaders, full of energy and determination, aided and seconded by a united profession, ever ready to give personal and financial assistance. The battles have been fought to win, and well may the profession of this State be proud of the enactments engrafted upon the State statutes. The annual meeting of the Association just closed was one of the most fruitful ever held, and the members determined there to again urge greater assistance to the State Live-stock Sanitary Board and to join the State Grange and dairymen in securing the passage of a law requiring that animals entering our State to replenish our dairies shall have been tested or shall be submitted to a test. They voted and paid over to the State Board of Veterinary Medical Examiners one hundred and fifty dollars to be used in pressing prosecutions of violations of the State Acts relative to the practice of veterinary science. It is this plan, this persistent and ever-at-it method, that counts; and as it wins in Pennsylvania, it will win in any other State, and we most earnestly commend the profession of other States to get together, work in unison, determine just what you want and need, and go in and win.

PROFESSOR BANG'S VIEWS.

So much has been said on the public platform, so much has been published in the daily press relative to the conclusions reached upon bovine tuberculosis by Professor Bang in Denmark, that we deem it wise and just to all concerned to publish in this number a carefully prepared abstract by one who has for years studied the work and investigations of Professor Bang, and who has been in correspondence with him, and is therefore well fitted to quote his views

accurately and thus enable our readers to better answer many of those who are quoting Professor Bang in such a way as to unfairly and improperly influence the minds of many who are seeking light on this subject through the veterinarian.

IMPORTANT ANNOUNCEMENT.

THE JOURNAL is happy to have the privilege of announcing that before October 1, 1897, there will be issued by one of America's leading veterinarians a complete work on veterinary sanitary medicine, including meat- and milk-inspection. There will be about forty of the various infectious and contagious diseases taken up, involving the equine, bovine, ovine, porcine, canine, and feline species of animals, and reference to the leading scourges of fowls. This book will be broad, comprehensive, and up to date in every line of this work, and will be a complete guide and text-book in the field of veterinary sanitary medicine.

A WORD TO THE SOUTH—A THOUGHT FOR THE NORTH.

NASHVILLE, the mecca of 1897, is now before us, and the time for completion of all the details of our programme and convention will be all too short to make out of our gathering the most that should result from our pilgrimage to Southern climes. While we shall enjoy every hospitable privilege and courtesy afforded us by our Southern friends and colleagues, there must be borne in mind that our chief purpose in turning our faces southward from every portion of North America is to make, above all, an opening era of progress in this new and promising field. Every line possible must be thrown out to secure all the advantages within reach in adding to the measure of recognition and support of our fellow-practitioners in that territory; and the good influences exercised by our Association in other sections of our country must be redoubled there, or our mission will be only half accomplished. The present scattered locations of the Southern veterinarians will make their labors hard to perform, and the members from the North will bear this in mind. The latter will, therefore, appreciate the fact that this imposes upon them an extra duty of aiding in every way and seconding every effort promptly and to the uttermost, when solicited by their Southern colleagues, and thus assure them that our chief purpose and aim will be to make doubly sure the position of

our profession in the forefront of the progress of the New South. Bear in mind that Nashville is not situated as are Buffalo, Boston, and Philadelphia, and that our sojourn there in 1897 will be preparatory for a future meeting still further south, as were the early meetings in Boston and Philadelphia. Let everyone give something as a contribution to this meeting, to the programme, to our ever-zealous, hard-working Secretary, to our Southern colleagues, to our adopted vocation, and Nashville will prove the open door to an unlimited field for the future votaries of our profession.

On to Nashville!

WAKE UP, CONNECTICUT!

What is the matter with the Nutmeg State Veterinary Association? Why is it not more actively in the harness? Surely the load has not been all drawn up the hill there, and the descent of ease secured. Surely they have not all the laws in that State that are needed for the protection of their people from charlatans and from contagious and infectious diseases. Surely the millennium of meat- and milk-inspection has not been reached. We have not heard of any quarantine regulations to guard the borders of their State. There must be danger in all these directions which must be provided against. And this work is the duty of every State organization. The Nutmeg State has a large number of good men, intelligent veterinarians and interested professional men, and a shoulder-to-shoulder struggle will secure all the desired results. Sister Associations are ready to help. The Journal is yours for support, information, and a helping hand. Wake up, colleagues, and command us all to help you!

MAKE SHORT WORK OF IT.

A bill has been presented in the State Legislature of Pennsylvania by Mr. Jennings, of Sullivan County, proposing to reopen the law of 1889, requiring registration of all veterinarians. The object of the measure is to enable those who have been in practice or who have been using the title for the past ten years to be privileged to register on or before January 1, 1898. As this Act is disguised legislation of a special nature and of the most pernicious character, every veterinarian in the State should raise his voice against it, wield his pen to defeat it, and, in making short work of it, impress his representative that there will be no toleration

of such vicious legislation as this which is so prejudicial to public good.

ANOTHER German embargo is announced involving an eight-day quarantine of all horses from the United States. But the order does not apply to those from Canada. After this period, on passing veterinary inspection, they are permitted to enter the markets for sale. Forbearance with the annoyances aimed at this country has ceased to be a virtue, and only retaliatory measures will wake these people up. Stop the beet-root importation, analyze some of the beers and wines sent us, and there will soon be a stay of proceedings.

NEW YORK CITY has listed tuberculosis among the infectious and contagious diseases, and proposes to deal with it from such a standpoint, for all of which every true student of sanitary medicine should be deeply thankful, as it cannot help to solve much of the mystery surrounding the most potent methods of propagation and transmission, and it will be a means of determining how radical must be the measures to be adopted as sanitary police regulations.

THE State Grange of Pennsylvania strongly indorses the proposed legislation to prevent the introduction of untested cows from other States among our dairy herds. It will also petition the Legislature to appropriate a sum of money for prosecuting the work of investigation of several of the diseases so destructive to the live-stock interests of the State, and ask that suitable facilities may be provided and that the work be under the direction of the State Live-stock Sanitary Board. All of which is in keeping with the proper appreciation of the live-stock and dairy interests of the Keystone State.

TWO EXCELLENT SELECTIONS.

GOVERNOR ROBERT B. SMITH, of Montana, has called Dr. M. E. Knowles to the position of State Veterinarian. Dr. Knowles, who is a graduate of the American Veterinary College and a member of the United States Veterinary Medical Association, is peculiarly well equipped by virtue of a wide and varied practical experience in the veterinary profession, having served in official positions where extensive experience has fitted him for excellent State work. We are sure there will be no backward step in this

hustling, aggressive State in caring for its valuable live-stock industries, and there will be an earnest disposition to broaden the field of usefulness and employment of a larger number of veterinarians. Dr. Knowles succeeds Dr. Robert H. Bird, who has held the position for several years.

Franklin, Pa., has chosen for its mayor Dr. George B. Jobson, a veterinarian well known throughout the oil country. The doctor is a member of the Pennsylvania State Veterinary Medical Association, and has not forgotten to combine with his professional duties those of good citizenship. In many ways he bas always shown his interest and zeal in the welfare of his adopted city, and she has now chosen him to preside over her needs and destiny as chief magistrate. We are proud of this recognition of one of our members, and doubly so of his keen interest in good politics, and there is assured to Franklin a wise and broad administration of her public affairs and a keener interest in her well-being through a more wholesome and pure food-supply than she has ever enjoyed. We congratulate our colleagues on the merited recognition accorded them.

WHY do certain Western live-stock journals continually inveigh against the bringing of sheep across the Mexican border, as if this was the only source of scab among sheep, when some of the Western States find it necessary to quarantine against all the States around them for the same cause. This savors too much of the actions of foreign countries against our own meat-products.

THE Army Legislative Bill has gone to the extra session of Congress. And with better prospects of returning prosperity, through a large balance of trade in our favor, it is felt that the one chief obstacle in its passage, that of need of retrenchment, will not be so forceful, and with the continued aid and support of the profession the committee is sanguine and hopefully confident of its being engrafted upon our national statutes.

Let everyone give a helping hand.

THE death of Dr. John R. Hart, of Philadelphia, noted in this number, removes from the profession a valuable member, a conscientious worker, a devoted student of his calling, and a valued citizen of this community.

It would seem that the lower branch of our national government has run mad in its zeal to pander to every locality and interest in rearing up a tariff barrier that will be as surely wiped off our statutes as the rising of the sun. Its intention to place a tariff on books and scientific instruments intended for libraries and institutions of scientific teaching is a fair sample of its general character, and this effort to restrain the attainment of scientific knowledge should arouse a protest from every advocate of higher education.

Our May number will be as replete with interesting matter as our present issue. Among the leading features will be the commencement exercises of the various veterinary colleges; much original matter intended for this issue and correspondence, both interesting and important; several important book reviews, and much other matter crowded out of this number.

One of the members of Congress from Nebraska proposes, in conjunction with the appropriation bill to the Department of Agriculture, to rescind all the movements and decisions of the past three years that have led to so wise an establishment of the merit system in this department. We ask him to read the signs of the times, to note particularly the selfish interests only that give support to this movement, and, on the other side, balance the strong influence and unselfish advocacy of those who favor its retention. It will require but a moment for a wise man to decide on which side of the fence he should get down, and to bear in mind the experience of the Ohio man who trifled with the heels of the mule, and who afterward was not near so good-looking, but he had an all-fired sight more sense. Don't trifle with a good law, a true evidence of national progress. Don't monkey with the buzz-saw.

Prospective changes in the editorial direction and ownership of the *Veterinary Magazine* involve the retirement of Professor Pearson. Professors Adams and Harger will maintain the periodical and assume the chief direction of the same.

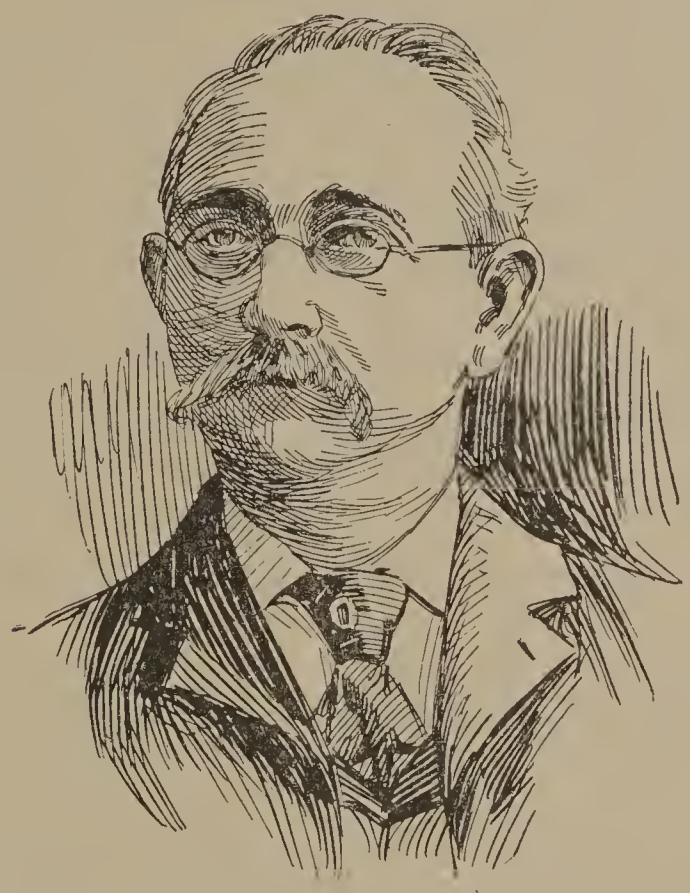
MARRIAGES.

On January 30th Dr. Wilfred Lellman, Professor at the New York College of Veterinary Surgeons, N. Y., to Miss Gertrude Runge, of Stettin, Germany.

At Detroit, Mich., November 18, 1896, by the Rev. C. H. Vincent, Dr. Alexander Findlay, of Camden, N. Y., to Miss Lillian McAully, of Centerville, Ont., Canada.

NECROLOGY.

JOHN R. HART, V.M.D. At the German Hospital, Philadelphia, March 29, 1897, from acute appendicitis, passed peacefully away one of the best-known and most highly respected veterinarians of our country. Dr. Hart was born in Hammonton, New Jersey, May 9, 1848. Shortly after his parents moved to old Kensington, Philadelphia, where he grew to manhood and spent his entire professional career, and the people learned to prize the noble qualities he possessed. His early life was full of privations and hardships,



which he endured with a remarkable degree of courage. He was possessed of a determination to succeed that never faltered in his honorable career. He lived as a citizen among the people who had known him from childhood and as a useful and appreciated practitioner among a large clientage. His early struggles changed in no way the generous, hospitable, and warm-hearted character of the man, and these beautiful traits and disposition were shown forth in his everyday life, and claimed for him a friend with every new acquaintance.

Dr. Hart was graduated from the Veterinary Department of the University of Pennsylvania in the class of 1895 after a period of hard and earnest study, during which he continued his care of a large practice. For thirteen years he was city veterinarian, which position he raised to one of much importance and worth. He was an honored member of the United States Veterinary Medical Association, where on several committees, especially that of Army Legislation, he performed the most earnest and assiduous service; treasurer of the Pennsylvania State Veterinary Medical Association for seven years, where, in addition to caring for the accounts in a most accurate manner, he frequently raised large sums of money for State legislative work, and wielded a strong influence at all times in securing favorable legislation. As President of the Keystone Veterinary Medical Association, an honor conferred upon him in recognition of his valuable services to the profession, he was enjoying a second term in office, accorded him by a unanimous vote. Surely God worketh out His plans in a mysterious way, for so useful and earnest a worker will be missed on every side and his place be difficult to fill. His funeral was attended by a large number of veterinarians, many alumni of his alma mater, and the students of the Veterinary Department of the University of Pennsylvania. President Osgood, of the U.S.V.M.A., and Prof. R. S. Huidekoper, his old preceptor, were among the honorary pall-bearers, while Drs. Leonard Pearson and W. Horace Hoskins were assigned posts of duty in carrying his body to its last resting-place. A wife and nine children survive him. All in all, it was good to know him and to be counted among his friends.

John Doris, Jr., D V.S., died at his residence in Pittsburg, Pa., on Friday, March 5, 1897, of acute pleurisy, after suffering seven days' illness, which was contracted in the line of professional duty while treating sick animals in the flooded districts in the lower parts of the city. He was born and raised in Pittsburg, where he learned the farrier's trade with his father, who was a classical scholar and a well-informed veterinarian and master-horseshoer. Dr. Doris followed his trade for twenty-five years. Then, having decided to study veterinary science, he attended one session at the Ontario Veterinary College, also one session at the Ohio Veterinary College, from which he was graduated and received his degree of D.V.S. April 5, 1892. He was veterinary inspector for three years in the Bureau of Animal Industry, United States Department of Agriculture, and was stationed in Pittsburg. He was a

member of the Pennsylvania State Veterinary Medical Association, also of the leading Catholic societies of that section. He was a warm-hearted and generous friend, a good husband, and kind and indulgent father. He was in the fiftieth year of his age, and leaves a widow and three small boys to mourn his demise.

J. W.

DANIEL WALSH, V.S., one of Philadelphia's oldest non-graduates, died on March 1st. His practice was largely among the draymen and teamsters along the Delaware River front.

NEW PUBLICATIONS.

The translation of Professor Georg Müller's *Diseases of the Dog* is rapidly nearing completion. Dr. Alexander Glass, the translator, is sparing no effort to have the book complete in every detail and brought down to the latest researches and investigations of the diseases of canines. The illustrations, numbering nearly one hundred, will add greatly to the value of the book. The work is being printed by the well-known medical printing house of William J. Dornan, printer of the JOURNAL, an assurance of the best workmanship.

The *Agricultural Journal*, of the Cape of Good Hope, comes out in its January issue in new form—a complete new dress, more attractive, more readable, and is a very acceptable change over the former issues of this periodical.

CORRESPONDENCE.

EDITORS JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR SIRS: In the February issue of your JOURNAL is a communication by Mr. Harold Sorby, Chicago, manager of the Pasteur Vaccine Company, in which he announces the discovery that "equine anasarca" is due to a variety of the streptococcus, and that it can be successfully treated by the antistreptococcus serum (Marmorek).

As it appeared to me questionable that anasarca, as understood in its general pathological sense, should be a germ disease, I procured a copy of the *Recueil de médecine vétérinaire*, containing the

original announcement. This had been made at a regular meeting of the Central Society for Veterinary Medicine of Paris, and from the tenor of the discussion by Dr. Trasbot and others it is evident that the French veterinarians understand by "anasarca vrai" the disease known to English veterinarians as "purpura hemorrhagica."

In this version the discovery becomes at once intelligible, and is a verification of an idea which many of us have held for some time. Moreover, it is very interesting and important news for veterinarians.

OLOF SCHWARZKOPF.

CHICAGO, March 6, 1897.

SECTION WORK IN THE U.S.V.M.A.

EDITORS JOURNAL COMPARATIVE MEDICINE, ETC.

DEAR SIRS: Our veterinary journals have recently contained articles with reference to the desirability of devoting a part of the time of the annual meeting of the U. S. V. M. A. to section work. I think there can hardly be two opinions as to the good results that would accrue from the giving up of a portion of the time of the convention to the consideration of subjects having a more practical bearing on the everyday work of the general practitioner. It seems to me that by so doing we would popularize our meetings and render them more attractive to the great bulk of the profession. The man who is making his living by general practice is more apt to be induced to become an active member of our national body if he finds that by attending the meetings he will receive information and instruction which are calculated to benefit him in his daily work. It matters not at what point our meetings may be held, there are members who have to travel long distances to be in attendance; if, however, we can offer attractions to the general practitioner, and make him feel that it will pay him to become "one of us," I think we will have accomplished a great deal; because, after all, it is the profession as a whole that we have to look to for the encouragement and growth of our organization. By dividing up the time of our meeting, then, so as to cater to the wants of the various branches of the profession, we will not only add to the general interest taken in the Association, but largely augment our roll of membership.

If in order, I should like to express the hope that our Executive Committee is bearing Nashville, Tenn., in mind for the annual meeting of 1897. The profession in the South not only desires,

but *requires* the aid and stimulus of our National Association; and as the profession south of Mason and Dixon's line has never been favored with a visit from that body, I sincerely trust the Executive Committee will appreciate our necessities and realize the benefits to the profession in the southern part of the Union that would result from such a meeting.

W. H. DALRYMPLE, M.R.C.V.S.

NEW ORLEANS, LA.

CONTROL WORK.

Montana. State Veterinarian Knowles denies the existence of scab in sheep in his State. The only outbreak was through some Wyoming sheep brought into the State. Governor Smith, by proclamation, will quarantine against the following States owing to the belief that scab prevails among their sheep: Oregon, Nevada, California, Washington, Wyoming, Idaho, Colorado, Utah, Oklahoma, and New Mexico. Each county of Montana has a sheep inspector.

Connecticut. During 1896 some 6300 cattle were examined for tuberculosis and 897 were condemned and destroyed. The average value of animals condemned was $24.47. The total cost of the entire work for the year, including commissions, fees, animals condemned, veterinary services, etc., was $31,639.63. Of this amount, $3497.69 was paid as professional fees to veterinarians.

National. The first official order issued by Secretary Wilson, of the Department of Agriculture, made its appearance on March 9th. It concerns the exportation of beef to foreign countries, and provides "that from and after March 15, 1897, all beef offered for transportation to European ports, whether fresh, salted, canned, corned, or packed, being the meat of cattle killed after the passage of the Act under which this order is made, shall be accompanied by a certificate issued by an inspector of the department showing that the cattle from which it was produced were free from disease and the meat sound and wholesome; and in order that it may be determined whether all beef exported to European ports has been so inspected and found to be wholesome, it is further ordered that the meat of all other species of animals exported to such ports which for any reason does not bear the inspection stamps of the department, shall be packed in barrels, cases, or other packages

which are legibly marked in such manner as to clearly indicate the species of animal from which the meat was produced. Meat which is not so marked and which is not accompanied by a certificate of inspection will be classed as uninspected beef and will not be allowed exportation to European ports."

No clearance is to be given to any vessel having on board such meats until the provisions of the order are complied with. Until otherwise ordered, certificates will not be required with beef exported to other than European countries. The original order of the Secretary of Agriculture, of August 28, 1895, for carrying out the provisions of Section 2 of the Act under which the order is made was postponed to the date set out in Secretary Wilson's circular.

Virginia. The subject of meat- and dairy-inspection is being agitated in some of the cities of the State. The Town Council of Blacksburg passed an ordinance a short time ago establishing meat- and dairy-inspection for the town; also establishing a board of health, consisting of two physicians and one veterinarian.

The University of Virginia has requested the State Veterinarian to make the tuberculin-test on all dairy herds supplying milk to the University boarding-hall.

As a result of the work done on Texas cattle-fever in Virginia in 1896 over six counties have this year been released from quarantine. The State is making a strong effort to stamp out the disease.

Pennsylvania. One herd in the northwestern part of the State, numbering 171, proved to have 157 tuberculous. This herd had no known cases seven and a half years ago, when seven head of short-horn cattle were purchased from a New York herd, most of which were in a bad condition at the time, as they were coughing, and many soon died. Since then many deaths have occurred. The average age of the herd was a little over four and a half years. Surely no one will dispute the need of laws to protect our dairy interests, the only profitable business to the farmer in Pennsylvania, from such disastrous results.

Dr. Emil Knight reports a two-year old cat presented for castration, with but one descended testicle. This was removed, and though twelve months have elapsed the second one has not made its appearance in the scrotum; the feline still frequents his old haunts on stated occasions.

LEGISLATION.

South Dakota. A bill has been presented to the Legislature in this State looking to better regulations regarding the sheep industry and its protection from the dissemination of sheep-scab.

Illinois. The movement in Illinois to establish a veterinary college at the University of Illinois has taken shape in the form of Senate Bill No. 204, which provides for the creation of such a department on an adequate scale, and has very earnest support throughout the State. If this wise movement is to be accomplished, the aid of every veterinarian in the State will be needed.

The bill to regulate the practice of veterinary science is in a fair way for favorable consideration. If the State is going to create a school of veterinary medicine, it should be prompt and eager to properly protect those who qualify themselves for this work.

Wisconsin. A bill to regulate the practice of veterinary medicine, surgery, and dentistry:

SECTION 1. No person shall practise veterinary medicine, surgery, and dentistry, or any branch thereof, in this State, for compensation, or shall directly or indirectly ask or receive for his service as a practitioner of veterinary medicine and surgery, any fee or reward, or shall assume the title of doctor, physician, or surgeon by means of any abbreviation, or by the use of any word or words, letters of the alphabet of the English or any other language, or any device of whatsoever kind, printed, written, or painted, or exhibited in any advertisement, circular, handbill, letter, or other instrument, nor on any card, sign, door, or place whatsoever; nor shall he be a competent expert witness in any court in a matter pertaining to diseases of animals, except he be duly registered as hereafter provided in the office of the register of deeds of the county in which he resides.

SEC. 2. No person shall be entitled to register as such practitioner unless he be a graduate of a legally chartered school, college, or university of medicine and surgery, or shall have practised veterinary medicine, surgery, and dentistry in this State continuously for a period of not less than five years preceding the passage of this Act; or if he be not a graduate of a legally chartered school, college, or university of medicine, surgery, or dentistry, he must pass an examination before a board of examiners. Should any candidate presenting himself for examination before said board fail to pass the same in a creditable manner in the judgment of said board, he may present an application to said board for another examination at any time within six months after his first examination.

SEC. 3. A board of examiners shall be appointed by the Governor within thirty days after the passage of this Act, to be known as the "State Board of Veterinary Medical Examiners." Such board shall consist of three

practising veterinarians, who shall each be the holder of a diploma granted by a legally chartered school, college, or university, who shall hold office one for one year, one for two years, and one for three years after such appointment or until their successors are appointed thereafter each year. The Governor shall appoint one member of said board to fill the vacancy occasioned by the expiration of the term of office of those previously appointed, and is further authorized to fill such vacancies as may occur.

SEC. 4. Provides for a fee of ten dollars, to be used to defray expenses of the board.

SEC. 5. Provides for the proper registration in the respective counties of the State by those who are licensed by the board.

SEC. 6. Provides penalties for violation of the provisions of the Act.

SEC. 7. Designates the county district attorneys as prosecutors.

SEC. 8. Provides for the rendering of gratuitous service in emergency cases by authorized practitioners from other States.

SEC. 9. Provides for the immediate enforcement of the provisions of the Act on passage.

Connecticut. The repeal of the former law has led to the presentation of a new one relative to the control of bovine tuberculosis. A bill to regulate the practice of veterinary science has been offered in the present State Legislature.

Pennsylvania. The bill to license horseshoers in Pennsylvania was defeated on second reading in the House, and an effort to reconsider it for a place on the calendar was followed by a motion to indefinitely postpone. Public sentiment was not sufficiently aroused as to its merits.

A resolution relating to the protection of the cattle of Pennsylvania from diseased cattle from other States, adopted by the Legislative Committee of the Pennsylvania State Grange, March 9, 1897:

WHEREAS, There are at present no restrictions on the introduction of diseased cattle from other States into Pennsylvania; and

WHEREAS, It is known that many cattle in this Commonwealth have become diseased through contact with diseased cattle from other States; and

WHEREAS, The fact that some States have established regulations providing that only healthy cattle may be brought within their borders places Pennsylvania at a disadvantage in this respect; be it

Resolved, That we, the Legislative Committee of Pennsylvania State Grange, after a careful examination of the proposed bill introduced by Hon. Louis Piollet, entitled "An Act to protect the health of the domestic animals of the Commonwealth of Pennsylvania," most heartily indorse the same and earnestly urge its passage by the Legislature.

Committee: Leonard Rhone, S. J. Logan, James G. McSparran, B. F. Warren, Frank N. Moore, and Gerard C. Brown.

Dr. Pize has discovered in guaiacol a new anæsthetic. Small doses are injected under the skin.

SOCIETY PROCEEDINGS.

U. S. V. M. A.

THE resolutions adopted at Buffalo, fittingly recognizing the generous hospitality of the city accorded us in September last, have been suitably engrossed and framed and placed with Chairman Hinkley, of the local committee of U. S. V. M. A. Permission has been asked of the city to allow a photographic copy to be placed in the City Hall.

Every Association meeting throughout the land between now and September should have on its programme, as a feature for consideration, action, aid, and the selection of delegates to the U. S. V. M. A. meeting at Nashville in September.

As the U. S. V. M. A. committee for receiving contributions to the Pasteur Monument Fund is desirous of making a report to the committee at Washington, it is earnestly requested that the members send in their contributions, that our part of this laudable project may be fittingly performed.

President Osgood announces the following appointments for the Committee on Intelligence and Education: Dr. H. D. Gill, Chairman; Drs. Thomas B. Rayner, Olof Schwarzkopf, W. B. Niles, and W. H. Dalrymple.

Dr. Dalrymple expresses himself in the terms of "I am mighty glad Nashville is to be the place of meeting for 1897."

President Osgood should appoint for the Nashville meeting a press committee, a committee on new members, and a local committee of arrangements. There is work for them all, and they could greatly enhance the success of the meeting. We hope he will act on the suggestion.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

(Reported for the JOURNAL by our Correspondent.)

THE Association held its ninth annual meeting in the Capitol Building at Des Moines, Ia., on Wednesday and Thursday, January 13 and 14, 1897.

About thirty members were present, which was a large attendance, considering the condition of the profession in this State at the present time.

First Day: Dr. L. U. Shipley, President, delivered an interesting address touching on the present condition of the profession in general and that of Iowa in particular, and offered some valuable suggestions relative to legislation and sanitation.

The Committees on Stock Paper Publications and Army Legislation failed to present any reports, but a resolution was adopted asking the Iowa members of Congress to support the bill of the Army Legislative Committee of the U. S. V. M. A.

Another resolution was adopted urging our Congressmen to do all in their power to defeat the pending bill relative to vivisection in the District of Columbia.

A number of new members were admitted.

The Committee on State Legislation reported that they had secured the introduction of a bill controlling the use of the title of veterinarian, but that they were unable to secure its enactment.

The Committee on Sanitation presented a report touching on the state of milk- and meat-inspection within the State and the larger cities of the United States, a short synopsis of the laws of the various States relative to the control of contagious diseases among live-stock, and a short *résumé* of the bills considered by the State Legislature at its last session relative to veterinary sanitation.

An invitation was extended to the State Fair delegates who were in session in another portion of the building to meet with us after supper and listen to a paper on "Serum-therapy in Hog-cholera," by Dr. A. F. Peters, of Lincoln, Nebraska. The invitation was accepted and at the appointed time and place Dr. Shipley called the two Associations to order.

Dr. Peters's paper brought out an animated discussion that was cut short by the President-elect of the Fair Association stating that it was time for the members of that Association to withdraw to participate in their annual banquet, and who extended an invitation to the members of the Veterinary Association to partake of their hospitality at the banquet table. On motion, this invitation was accepted. Most of the members of both Associations, to the number of about 125, repaired to the banquet hall, where, after feasting the physical man, we were entertained until a late hour by a number of carefully prepared and spicy toasts.

Second Day: President Shipley called the Association to order promptly at 9 A.M. The business transacted was the election of officers for the ensuing year, which resulted as follows: President, G. A. Johnson, of Sioux City; First Vice-President, S. H. Kingery, of Creston; Second Vice-President, J. H. McLeod, of Charles City; Secretary and Treasurer, J. E. Brown, of Oskaloosa.

The President then introduced Dr. J. F. Kennedy, Secretary of the Iowa State Board of Health, who read a very able paper on the "Relation of the Veterinary Profession to the Public Health."

Prof. W. B. Niles delivered a short lecture on "Parasitic Disease of Sheep." President Shipley reported a case where hogs contracted tuberculosis from a tuberculous cow. The following papers were then presented: "Duties of the State Veterinary Surgeon," by Dr. J. I. Gibson, State Veterinarian; "Ergot in the Treatment of Fungoid Growths," by Dr. W. A. Heck; "Azoturia," by Dr. W. H. Austin; "Thermo-cautery in Veterinary Practice," by Dr. P.O. Koto; "Lymphoma," by Dr. Miller; "Barium Chloride: Its Uses in Colic," by Dr. J. E. Brown. Each of these papers provoked an animated discussion, which, owing to the lack of time, had to be cut short in some cases.

At 6.15 P.M. the meeting adjourned, to meet at such time and place as the President and Secretary should designate.

Dr. Peters's (of Lincoln, Neb.) good work lent much interest to the meeting, and it was with much pleasure that the Association unanimously elected him an honorary member.

To those members of the Association who failed to attend we extend our sympathies, for they certainly missed a rare treat, both from an instructive

and social point of view. One of the very pleasing features of this was the acquaintance and fraternal feeling established between the State Fair and Iowa State Veterinary Medical Associations.

The State Dairy Commission was in attendance a part of the time during both days' sessions, and took an active part in the discussions, especially those relative to milk-inspection and tuberculosis.

This closed one of the best meetings ever held by any State association in this country, and we sincerely hope that others as good may follow, and that none of the members will be compelled to miss the benefits that are to be derived from an attendance upon such meetings.

MASSACHUSETTS VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting was held at No. 19 Boylston Place, Boston, on Wednesday evening, January 27, 1897. The President, John M. Parker, called the meeting to order at 8 P.M. Members present: Drs. Beckett, Blackwood, Burr, Cronan, Frothingham, Howard, Lee, Lewis, McLaughlin, Parker, Peters, Pierce, Rogers, Winslow, Winchester, Stickney.

Dr. McLaughlin reported the malformation of a tooth met with recently in practice. Dr. Winchester reported a case where he found adhesion of one testicle to the peritoneum. Dr. Cronan had a dog presented at a clinic with a half-dozen twists in the off forward leg. Dr. Beckett reported a case of "Bastard Strangles" which made a good recovery. Dr. Howard reported an interesting case of a pony which ran away and severed the jugular. When he saw, it some time after, a clot had formed, and it made a good recovery. Dr. Cronan reported the successful removal of a prolapsus uteri by ligature.

Meeting adjourned at 10.10 P.M.

HENRY S. LEWIS,
Secretary.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

THE fifteenth annual meeting was called to order at 2.30 P.M., Tuesday, February 2, 1897, in the parlors of the New Grand Hotel, Lansing, Michigan, President Dr. W. W. Thorburn in the chair. The following were present: Drs. J. Hawkins, D. G. Sutherland, D. Cummings, J. A. Dell, E. A. A. Grange, J. W. Ferguson, W. J. Byers, J. C. Whitney, Wm. Jopling, W. W. Thorburn, J. J. Joy, W. A. Giffen, James Drury, W. M. Burdick, H. M. Gohn, Wallace McQueen, Judson Black, G. W. Dunphy, A. McKercher, B. C. McBeth, S. Brenton, and George E. Metcalf. Drs. Wm. S. Hamilton, of Chelsea; D. M. Waldo, of Grand Ledge; L. A. Grimell, of North Lansing; and E. T. Handy, of Eaton Rapids, were present as visitors and became members of the Association.

The President, Dr. Thorburn, gave a ringing address. Among other things, he said that the year just closed had been one of deep concern to the veterinary profession. Statistics show that since 1892 the valuation of horses in Michigan has made a 50 per cent. decline, and he felt assured that each member present had felt the effects of it in their practice. He gave encouragement by saying that he thought the darkest days are past and we are soon to emerge into the light and sunshine of professional prosperity, and the trials through which we have recently passed will enhance

the sweetness and pleasure of the future. He felt only pity and regret for those who, in the trials of financial depression, have taken false steps by entering upon quackery and questionable methods of practice. He suggested the advisability of a table of rates for professional services. On veterinary legislation he spoke at some length, and thought the only way to secure the passage of a bill was to insert a "time" clause. A vote of thanks was tendered President Thorburn for his very able address, which was ordered spread on the minutes.

The minutes of last meeting were read and approved. The report of the Secretary for the year ending February 2, 1897, was read and approved. The Treasurer's report for the year ending February 2, 1897, was read and referred to the Finance Committee.

The Committee on Intelligence and Education made a verbal report, which gave rise to quite a discussion, particularly that calling attention to the vivisection bill in the District of Columbia. The committee was instructed to draft resolutions disapproving such a bill becoming a law. The report of the committee was accepted.

The Committee on Diseases made a verbal report, which was accepted.

The report of the Committee on Legislation, owing to the death of the chairman, Dr. Rutherford, was made by Dr. Giffen, of Detroit. The principal point at issue was the presenting to the Legislature a bill with time clause inserted. A yea and nay vote of the members disclosed the fact that the majority of the Association did not favor a time clause. The report was accepted.

A committee was appointed by the President, consisting of Drs. E. A. A. Grange, G. W. Dunphy, and J. A. Dell, to draft resolutions on the death of Dr. J. D. Rutherford.

Meeting adjourned until 7.30 P.M. Called to order for evening session at 8 o'clock.

Committee on Intelligence and Education presented resolutions in reference to the vivisection bill, which, upon motion, were approved and the Secretary instructed to send printed copies to the Senators and Congressmen of this State.

The Finance Committee reported that they found everything correct with the Treasurer's books; report accepted.

Upon motion, the President appointed a committee, consisting of Drs. J. Hawkins, J. W. Ferguson, and W. McQueen, to communicate with his honor, Governor Pingree, requesting him to retain Prof. E A. A. Grange as State Veterinarian.

Moved and supported that this Association donate $5.00 to the Pasteur Monument Fund, providing we have funds enough in the treasury after paying expenses. Motion lost.

Prof. Grange gave a very able, interesting, and instructive talk on the "Milk Apparatus and its Diseases," which was illustrated by charts.

Moved and supported and carried that Prof. Grange be allowed to invite any of the students from the Agricultural College who may wish to see surgical operations to be present at the same.

Dr. J. Black read a paper prepared by Dr. Stevens, of Yale, giving twenty experiments with barium chloride in the treatment of obstinate constipation and acute indigestion. Dr. Stevens speaks very highly of the remedy.

Meeting adjourned at 11.30 P.M., to meet at Dr. Thorburn's infirmary at 9 A.M., to witness surgical operations.

Wednesday, February 3d, 9 A.M.: As prearranged, all the members of the Association present and several students from the Agricultural College met at Dr. Thorburn's to witness operations. Dr. S. Brenton, of Detroit, was the chief operator, and performed median neurectomy for injured tendons and disease of the fetlock, tarsal tenotomy for spavin, and neurotomy for navicular disease and ringbone. The operations proved very interesting, and Dr. Brenton was tendered a hearty vote of thanks for the valuable instructions given.

Meeting called to order again at 2 P.M. The election of officers was taken up and resulted as follows: President, Dr. A. Campbell, Jackson; First Vice-President, Dr. J. Black, Richmond; Second Vice-President, Dr. W. A. Giffen, Detroit; Third Vice-President, Dr. H. M. Gohn, St. Johns; Secretary and Treasurer, Dr. William Jopling, Owosso; Directors, Drs. J. J. Jay, Chairman, Detroit; Dr. W. M. Burdock, Chesaning; Dr. A. McKercher, Lansing; Dr. J. Byers, Charlotte; Dr. J. W. Ferguson, Bay City; Dr. James Drury, Ypsilanti.

Moved and supported that a bill be drafted and presented to the Legislature now in session to protect the "College Title of Veterinary Surgeon;" carried.

Drs. G. W. Dunphy, H. M. Gohn, and S. Brenton promised papers for the next annual meeting.

A vote of thanks was given Dr. Thorburn, the retiring President, for the interest taken in the Association and for his courtesy to the members while in Lansing, his home.

A vote of thanks was extended our host and hostess for their uniform kindness and attention.

The following standing committees were appointed:

Intelligence and Education: Drs. E. A. A. Grange, Lansing; S. Brenton, Detroit; G. W. Dunphy, Quincy.

Committee on Diseases: Drs. D. Cummings, Port Huron; J. Hawkins, Detroit; H. M. Gohn, St. Johns.

Committee on Finance: Drs. W. W. Thorburn, Lansing; Wallace McQueen, Oxford; George E. Metcalf, Detroit.

Committee on Legislation: Drs. W. A. Giffen, Detroit; J. W. Ferguson, Bay City; Judson Black, Richmond.

Adjourned in due form.

WILLIAM JOPLING,
Secretary.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

THE semi-annual meeting was held at Leland Hotel, Springfield, Ill., February 17, 1897. The meeting was called to order by the President, Dr. M. R. Trumbower, at 10 A.M. On roll-call by the Secretary the following members responded: A. G. Alverson, Albert Babb, A. H. Baker, L. Campbell, James Henderson, J. F. Pease, H. G. Pyle, E. L. Quitman, G. G. Ratz, C. E. Sayre, M. R. Trumbower, N. P. Whitmore, and W. H. Welch. The minutes of the previous meeting were read and approved.

On motion, the talk on "State Work," by Dr. M. R. Trumbower, was postponed till afternoon. Dr. J. F. Pease read his paper on "Study of Odontomes," which was very interesting and liberally discussed. The So-

ciety then listened to the very instructive essay of Dr. W. H. Welch on the subject "Milk Sickness." On motion, the ensuing discussion was closed. On motion, a vote of thanks was tendered to the essayists for their productions.

On motion, a committee of three, consisting of Drs. Albert Babb, A. H. Baker, and J. F. Pease, was appointed to go before the House Committee of Live-stock and Dairying, before which our veterinary bill is to come this afternoon. On motion, Drs. M. R. Trumbower and A. G. Alverson were added to the committee.

On motion, the Society adjourned until 4.30 P.M. The Society reconvened at the appointed hour and listened to the report of the committee through its chairman, Dr. Albert Babb. The House Committee of Live-stock and Dairying postponed action on the veterinary bill for one week.

On motion, the rules were suspended for the time being and the following gentlemen elected to membership by acclamation: Dr. G. G. Grundy (C. V. C., 1890), Morrisonville, Ill.: vouchers, Drs. Albert Babb and N. P. Whitmore; E. J. List (C. V. C., 1892), Havana, Ill.: vouchers, Drs. Albert Babb and M. R. Trumbower.

The President appointed a committee of three, consisting of Drs. Welch, Alverson, and Quitman, to draft resolutions in regard to the death of Dr. J. W. Parkinson, late of El Paso, Ill. They made the following report:

WHEREAS, The all-wise Providence has seen fit to remove from our midst our professional brother and former co-laborer, J. W. Parkinson, late of El Paso, Ill., an enterprising and conscientious veterinarian, whose studious and gentlemanly qualities placed him in the front rank of our profession; be it hereby

Resolved, That we, the Illinois State Veterinary Medical Association, deeply deplore his loss to the Association and to the profession at large, and sincerely sympathize with his family in their bereavement.

Resolved, That these resolutions be spread upon the minutes of this Society and that a copy be forwarded to the family of the deceased.

Dr. Trumbower then gave the Society a very entertaining and instructive discourse on "State Work."

On motion, the Society adjourned, to meet in Chicago in November, at the call of the President.

ALBERT BABB, A.B., M.D.C.,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

OFFICERS AND COMMITTEES.

President, James B. Rayner, West Chester; First Vice-President, M. E. Conard, West Grove; Second Vice-President, J. C. Foelker, Allentown; Third Vice-President, George B. Jobson, Franklin; Recording Secretary, Jacob Helmer, Scranton; Corresponding Secretary, W. L. Rhoads, Lansdowne; Treasurer, John R. Hart, Philadelphia.

Board of Censors: W. H. Ridge, Chairman, Trevose; W. Horace Hoskins, Philadelphia; S. J. J. Harger, Philadelphia; J. C. McNeil, Pittsburg; J. W. Sallade, Pottsville.

Committee on Sanitary Science and Police: J. Curtis Michener, Chairman, Colmar; Francis Bridge, Philadelphia; J. F. Butterfield, South Montrose; J. B. Irons, Erie; S. E. Weber, Lancaster; N. E. Rheinhart, Pottstown; C. C. McLean, Meadville.

Committee on Intelligence and Education: W. H. Ridge, Chairman, Trevose; H. B. Felton, Philadelphia; W. S. Kooker, Philadelphia; Otto G. Noack, Reading; Charles T. Goentner, Bryn Mawr.

Committee on Revision of Constitution and By-laws: Thomas B. Rayner, Chairman, Philadelphia; W. S. Kooker, Philadelphia; W. Horace Hoskins, Philadelphia; Leonard Pearson, Philadelphia; W. H. Ridge, Trevose. *Ex officio*: James B. Rayner, West Chester; W. L. Rhoads, Lansdowne.

REPORT OF THE COMMITTEE ON RESOLUTIONS.

Resolved, That this Association indorse such measures taken by the Pennsylvania State Board of Veterinary Medical Examiners as will lead to the establishment of the dehorning of cattle as a surgical operation to be practised only by qualified veterinarians.

WHEREAS, During the past year many of our members have been sorely afflicted by trials and losses unusual in number and severe in character, that we have felt that we should in our sympathy for our fellow-members take some recognition as a token of our esteem and fellowship. We specially refer to the affliction of our fellow-members, Drs. Thomas B. Rayner, J. C. Foelker, and R. G. Webster, in the loss of members of their respective families, and to the serious illness of our fellow-members, Drs. James B. Rayner and S. E. Weber. To all of these we extend our sincere sympathy, and trust that these afflictions may be tempered in their severity to our fellow-members.

WHEREAS, This Association regrets extremely to hear of the death during the past year of William Tag, Ph.G., V.M.D., of Philadelphia, graduate of the Veterinary Department of the University of Pennsylvania, class of '91, who was for a considerable time a member of this Association and was respected by those of us who knew him best; be it further

Resolved, That these resolutions be spread upon the minutes of this Association, under a suspension of rules governing the order of business, and that a copy of the same be sent to the widow of the deceased.

WHEREAS, So many recommendations have been made by our President and members involving changes in the By-laws, and in that there are many points in which the present printed laws do not seem to cover clearly, we recommend the appointment of a Committee on Revision of the Constitution and By-laws.

WHEREAS, The State Board of Health of Pennsylvania is engaged in the important work of improving the sanitary conditions under which the inhabitants of our Commonwealth are obliged to live; and

WHEREAS, The results which have thus far been achieved by said board are of the greatest value to all citizens of the State and conducted in an economical but at the same time profitable and valuable manner, which deserves the support and confidence of the public, and the expense of their work has never been in proportion to the good that has resulted from it; and

WHEREAS, This condition results principally from the indefatigable en-

ergy of its members, and particularly of its Secretary, Dr. Benjamin Lee; and

WHEREAS, It is not proper for the State to place upon its servants duties that are so necessary and arduous as those that fall to the Secretary of the State Board of Health without making proper compensation therefor; it is hereby

Resolved, That the Legislature of the State of Pennsylvania is respectfully petitioned to increase the appropriation at the disposal of the State Board of Health to such an amount that its work can be carried on more extensively and readily; and be it further

Resolved, That in said appropriation provision should be made for an increase in the salary of the Secretary, Dr. Benjamin Lee, to an amount commensurate with the duties he has to perform.

WHEREAS, The subject of horseshoeing has been much neglected in this country, and no schools for the thorough and scientific education of horseshoers have ever been established in the United States, and there is a great dearth of reliable literature on this subject; and

WHEREAS, The matter of horseshoeing is of the greatest importance to the well-being of horses and their economical use; and

WHEREAS, It is desirable that knowledge of this important subject should be distributed to a greater extent; be it

Resolved, That the State Veterinary Medical Association of Pennsylvania hereby pledges its support to any movement that has for its object the dissemination of practical and reliable information in reference to the shoeing of horses; and it regrets that schools have not heretofore been established wherein horseshoers could be given a thorough knowledge of their trade, and hope that this defect will soon be remedied by the further development of movements already inaugurated.

WHEREAS, The live-stock industry of Pennsylvania is of great magnitude and is so indispensable to agriculture and to the inhabitants of the State at large; and

WHEREAS, It is at this time harassed and drained by a number of transmissible diseases, most of which are or will be preventable; and

WHEREAS, It is not possible for the State authorities to deal with sufficient system or accuracy with all of the questions connected with these diseases, on account of absence of full information regarding them; and

WHEREAS, Such essential information can only be obtained by laboratory and field experiments and investigations conducted on an adequate scale; it is hereby

Resolved, That the Legislature of Pennsylvania is requested to provide means for the inauguration and continuation of studies of the diseases afflicting the domestic animals of this Commonwealth, in accordance with a plan comprehensive enough to allow accurate conclusions to be reached that may safely guide veterinarians, live-stock owners, and the State authorities in dealing with these momentous questions; and be it further

Resolved, That a copy of these resolutions shall be transmitted by the Secretary to the President of the Senate and the Speaker of the House and to the Chairman of the Committee on Agriculture of the Senate and of the House of Representatives, and to the Secretary of the State Live-stock Sanitary Board.

WHEREAS, As it was largely through the efforts of the Pennsylvania State Veterinary Medical Association that the law organizing the State Live-stock Sanitary Board was passed by the last Legislature; and

WHEREAS, The veterinarians of the State have been greatly interested in and have carefully observed the policy and progress of this board; and

WHEREAS, Its work has been marked by efficiency, liberality, and conservatism, and has succeeded to a remarkable degree in disarming the critics who objected to its organization; and

WHEREAS, This desirable effect has resulted largely through the efforts of the State Veterinarian, Dr. Leonard Pearson; be it

Resolved, That the thanks of this organization be and are hereby extended to the Governor, Hon. Daniel H. Hastings, for appointing the present State Veterinarian in accordance with the expressed wishes of this Association; and be it further

Resolved, That the State Live-stock Sanitary Board is hereby congratulated upon formulating and putting into effect such practical and valuable measures for the suppression of the diseases of animals and methods that are in full accord with the requirements of the situation as far as they can be met with at this time; and be it further

Resolved, That a copy of these resolutions shall be sent to the Governor and to each of the other members of the State Live-stock Sanitary Board.

Committee on Resolutions: W. Horace Hoskins, Chairman; B. F. Senseman, and M. E. Conard.

AFTERMATH OF THE CONVENTION.

Ex-President Ridge may well feel a justifiable pride in the year's work of the Association.

One of the Association's members was not at his best, owing to the suffering incidental to cutting of a wisdom tooth, which promises much in the way of increased activity and Association work.

President James B. Rayner well deserved the honor conferred upon him, and we are assured that he will have earnest support from every member.

The Chairman of the Local Committee of Arrangements looked aghast on the first day, when he had provided luncheon for forty, and sixty guests presented themselves; he proved equal to the occasion.

The Philadelphia newspapers were nearly all represented and gave extended accounts of the Convention's work—especially so the *Ledger's* representative, Mrs. E. S. Starr—for all of which the members were more than thankful.

Many were the sympathetic expressions heard on all sides for the unusual number of our members upon whom sore trials and illness had fallen during the past year.

Franklin will make a royal place for our meeting in September next. With our Third Vice-President Mayor of that hustling city, safety and protection are at least assured us.

Great was the interest shown in the Convention's work by the students of the Veterinary Department of the University of Pennsylvania, and they are to be in great measure the future supporters of our Association. Over thirty of them were there at the several sessions of the Convention.

In Secretary Rhoads the Association will find a hustling, up-to-date Secretary. His paper, "Why?" was pungent, timely, and will do much good in Association circles when read.

Secretary McAnulty, of the State Horseshoers' Association, was very much delighted by the passage of the resolutions giving encouragement to the efforts to establish schools of instruction for their craft.

The old guard was not there; sickness and death have touched keenly our members Rayner and Foelker.

After a trial of strength for Doylestown and Williamsport, it was made unanimous to go to Franklin.

Many were the inquiries as to the whereabouts of Chairman Zuill, of the Committee on Intelligence and Education. For a year not one line has been forthcoming from this committee. Referred to Secretary Rhoads—Why?

Somebody side-tracked a little boom of one of Philadelphia's candidates for First Vice-President. Well, it has not gone wrong in falling upon the shoulders of member Conard.

Where does the City of Brotherly Love come in among the elective officers—oh, yes, it has the Treasurer, the "fellow who sits on the chist," and a good, sound, safe, iron-clad officer he is.

The County Secretaries were fully alive to their work this year and sent in many good reports.

The programme was loaded. Can we not have the same at Franklin?

No less than four of the six veterinarians employed by our city were at the Convention. We were glad to note this renewed interest.

Delegate Adams struck the key-note when he said there was only a place for *one* good, strong local association in Philadelphia.

Are our members in the Lehigh Valley losing their interest? Secretary Helmer will now have to look up our supporters in that district. He will make an ideal officer.

Secretary *pro tem.* Kooker found it a little hard to get back in harness again, but the Association never had a more efficient one than during his term of office, and it never did more work throughout the State.

Now we propose that the trip to Franklin in September shall include the ladies. Let there be no stay-at-homes.

Outgoing Secretaries Benner and Allen have been very efficient officers and well deserved the thanks of the members for the able and conscientious discharge of their duties.

There seems to be no limit of work for the Keystone State Association; each year finds it increasing in volume and worth. So much for good executive officers.

The Association badly needs a press committee to better aid the proper publicity of our work. Referred to the Committee on Revision of Constitution and By-laws.

Our visitors from New Jersey and Delaware added pleasure and interest to the meeting. There should be others.

Should not the Board of Trustees be increased to seven? Ask the Committee on Revision. We now have about 130 members, and the proposition to have it made up of retiring presidents may quickly lose some of the most valuable of our members.

One of our regular attendants from Bucks County was denied the pleasure of being there, but there was an added pleasure and responsibility at home —a daughter.

One of the popular members given to recitations at the luncheon is now a devoted student of the vocal art, and hopes by next year's meeting to entertain the members with a song.

ONEIDA COUNTY VETERINARY MEDICAL SOCIETY.

In the parlors of Stanwix Hall, Rome, N. Y., February 2, 1897, was held the regular quarterly meeting. Called to order by Dr. F. Morrow, President.

The following members responded to roll-call: Drs. F. Morrow, Oneida; A. Findlay, Camden; W. G. Hollingsworth, Utica; L. G. Moore, Trenton; R. C. Hurlburt, Boonville; H. W. Skerritt, Utica; H. D. Stebbins, West Winfield; Wilson Huff and J. M. Currie, Rome. The minutes of last meeting were read and approved.

When the order of new business was called, the incorporation of the Society was fully discussed. On motion, Dr. Hollingsworth was instructed to take legal steps to do so.

Dr. H. W. Pratt, Rome, was admitted to membership by a unanimous vote.

A communication from the State Board of Health was read, asking all the members of this Society to report all cases of tuberculosis in cattle that came under their notice; all agreed to do so.

Moved and seconded that the next meeting be held Tuesday, May 4, 1897, at the residence of Dr. Hollingsworth, 24 Summit Place, Utica, N. Y.; carried.

Next came the reading of papers: Dr. Findlay presented a paper on "Luxation of the Hip-joint in Cattle," relating much of his personal experience. A general and hearty discussion followed. Dr. Huff read a paper on "Advice to Veterinarians: The Opportunities of Educated Men." Also fully discussed.

There being no further business, an adjournment was in order. Essayist for next meeting, Dr. H. D. Stebbins.

J. M. Currie, V.S.,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The February meeting was held the 9th inst. with the following members of the profession present: Drs. R. S. Huidekoper, H. D. Gill, H. D. Martein, W. W. Martin, J. D. Houldsworth, S. J. J. Harger, Otto G. Noack, H. P. Eves, J. R. Hart, W. Horace Hoskins, Charles Lintz, James T. McAnulty, T. B. Rayner, and W. L. Rhoads.

Rev. J. D. Diederick, of Flowertown, Pa., gave a very interesting talk on "The Silo Ensilage; Ensilage-fed Cattle, their Condition and Results." His talk showed him to be thoroughly conversant with his subject, he having made a practical study of this question for several years in its most

minute detail, thus making the talk doubly pleasant and interesting to the practical veterinarian who is interested in cattle practice or has given the food question any study. He thought the white Southern corn the best variety, as the stalk is sweet and succulent as well as the ear. The better plan of planting is three or four feet apart and three or four grains to the running foot. This, if cut when the ears are in good condition for boiling, then shredded (as this is much better than the old method, which chopped the stalks and ears; the shredding not only puts the fodder itself in better condition, but has the corn more evenly distributed), and at this time properly housed, makes, if opened rightly (that is, by removing all the decaying top at first), a fine June food for the balance-ration of winter, and it should be used only as a balance-ration, for as a feed alone it soon causes the cattle to break down; but if used properly it is *par excellence*, taking the place of roots, etc., and is a better appetizer, keeping the flow of milk regular. At the conclusion of his much-appreciated talk Mr. Diederick was stormed with questions. These he readily answered, amply earning the hearty vote of thanks later extended to him by the Association.

The Association now adjourned its meeting and went in a body to the banquet-room in the Odd Fellows' Temple, where a luncheon was awaiting them, and if our figure-heads at Washington took half the interest in doing their duty toward Cuba that these veterinarians did in doing justice to the duty before them, Cuba Libre would be established within twenty-four hours.

After the invigorating influence of the Blue Points had begun to be felt, mixed, perhaps, with some of the *food-product* that has served to give one of our Western cities world-wide renown, then we heard how the Association had been useful in the home of one veterinarian, being for him a means of escape when probably a jack-pot was to be opened elsewhere; we then learned of the productiveness of farms in the northeastern section of Jersey. We learned also that while corn grew there very sparingly, the air seemed just suited to crows and dogs. We heard from Dr. Gill what progress science was making in the line of toxins. After his interesting talk we were entertained by Dr. Huidekoper telling us what he thought of toxins and what he knew of navicular disease. Those who know Huidekoper know he is always interesting, and this was certainly no exception to his general rule. In fact, everyone was called upon to say something, and each did his part, giving out some new ideas or brightening up some dark spots within the horizon of the veterinarian who is now striving to keep his profession on an honorable plane for the advent of better times.

The adjournment from this pleasant second session of the February meeting was now made on account of the distance some were from home.

W. L. Rhoads,
Secretary.

CHICAGO VETERINARY SOCIETY.

The regular meeting was called to order March 11, 1897, by the President, Dr. Walker. The minutes of the previous meeting were read and approved.

Some remarks were made by the President in regard to veterinarians having the privilege from the Chicago Telephone Company to use the

drug-store slot-telephones to call up their home-telephones free of charge. He requested that this matter be brought up under "new business."

A letter from Dr. Babb, Secretary of the Illinois State Veterinary Medical Association, was then read by the Secretary, setting forth the condition of the veterinary bill at Springfield, Ill. The report seemed favorable to the passage of the bill.

The Treasurer reported $37.01 in the treasury.

No report from the Secretary. No committees to report.

Under admission of new members, the applications of two gentlemen were considered—*i. e.*, Drs. E. W. McGarth and James Donovan. None of the Board of Censors being present to examine into the credentials of these two gentlemen, it was moved by Dr. Baker, seconded by Dr. McEvers, that the rules be suspended, and that as both gentlemen were well known to most of the members, both as to their qualifications as well as to their characters, that they be unanimously elected to membership. Voted; carried.

The regular programme being in order, the President called on Dr. Baker for his paper on "Open Joint." The paper proved to be an excellent one—one upon which the Doctor evidently had given much thought. It was particularly instructive as well as interesting, owing to the line of treatment suggested, which has been very successful, combined with the skill of the doctor, during the past five years. The paper was discussed by Drs. Allen, McEvers, Henderson, Ryan, Robertson, and Campbell. On motion, the discussion was closed. Motion by Dr. Robertson, seconded by Dr. Foster, that a vote of thanks be tendered to Dr. Baker by the Society for his most excellent paper. Voted and carried unanimously.

Dr. Robertson made some interesting observations in regard to the treatment of diseases of the hoof by horseshoers, and showed plainly the difficulty in drawing the line where the horseshoer should desist and the veterinarian begin, and showing that it was an impossibility for a horseshoer to shoe horses without doing some slight surgery (cutting corns, cracks, etc.) upon the hoof.

Referring to the remarks by the President in regard to the slot-machine telephones, Dr. Baker stated that he favored a conference with the company to request them to permit veterinarians the free use of the slot-telephones in drugstores for the purpose of calling up our own homes or offices, and he made a motion that the President appoint a committee of two to confer with the telephone company and try to arrange the matter. Seconded by Dr. Foster. On request of the members, the President appointed himself and Dr. Baker a committee.

A poster was next shown the Society, advertising free clinics and free treatment of horses at the Chicago Veterinary College for the benefit of poor people. Exception had been taken by one or two members to this placard, who had requested that the matter be brought up for consideration by the Society. Dr. Baker stated that all colleges had free clinics for the benefit not only of the students, but also in a measure as an assistance to the poor as well as to the sick or disabled patient; that people who would take advantage of the offer were either too poor to pay or deadbeats, and considering this fact, and also the fact that all this doctoring was done by the students for practice, he thought it a good thing and not at all in opposition to the rules of the Society or any harm to its members. Motion

by Dr. Campbell, seconded by Dr. Broderick, that the Society drop this matter and take no further notice of the posters or the free clinics at the Chicago Veterinary College.

Motion by Dr. Campbell, seconded by Dr. Henderson, to return to Dr. Bennett the dues paid to the Society, as owing to the change in his location ordered by the Bureau of Animal Industry he would be unable to attend our meetings, the change having been ordered after he had attended only one of our meetings. A reconsideration was offered by Dr. Baker, who thought this would be a bad precedent. On vote the motion was lost.

On motion, adjournment.

L. CAMPBELL, D.V.S.,
Secretary.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held on the evening of January 28, 1897, and was presided over by the President, Dr. Baker. Dr. Martin was also present.

Mr. Thayer furnished an interesting report of a case of colic, which was treated as such, and the animal resumed work on the following morning. Two days later the animal was found to be suffering from another attack, the symptoms of which were those of an ordinary colic, with the exception of the temperature, which was subnormal, and the fact that the patient stood backed up in the corner of the box. As time went on the animal showed all the signs of enteritis, with the exception of the temperature, which was still not elevated. An ounce each of chloral hydrate and aromatic spirits of ammonia was given in a quart of oil. Subsequently two doses of sulphate of morphia of two and a half grains each were given hypodermatically, and hot woollen blankets applied to the abdomen. On passing the syringe into the rectum for the purpose of administering an enema an obstruction was encountered, which, on backraking the animal, proved to be sand. The animal died about midnight. A post-mortem examination showed that the intestines contained a large quantity of undigested food and sand, and that the floating colon was entirely obstructed, the amount of sand removed from it being some fifty-seven pounds. Discussion elicited the fact that sand was used for litter in the stable and that the animal was accustomed to eat dirt whenever he had an opportunity.

Mr. Stevenson then read a paper on "Parturition." This he confined almost entirely to a consideration of the normal act, which he divided into four stages, viz.: (1) Preliminary, (2) dilatation of the os, (3) expulsion of the fœtus, (4) expulsion of the membranes. These varying stages were then graphically described by the essayist, and after the subject had been discussed the chairman called upon Mr. Matthews for his paper on "Peritonitis."

In considering this subject the essayist divided it into two main classes —acute and chronic—and the acute into primary and secondary. Primary peritonitis is rare and may follow cold, but more modern views scarcely recognize cold as more than a predisposing cause, which permits the action of various micro-organisms. Secondary inflammation is due to extension from other organs, in which case the determining cause is the penetration into the peritoneal cavity of irritating germs. After considering the various pathological appearances Mr. Matthews said that there were probably essential differences between the various kinds of peritonitis, and that bacteriology was beginning to give valuable information upon this point; the

organism most commonly present is the streptococcus pyogenes, and in a majority of the cases arising from perforation the bacillus coli communis is also present. The symptoms were next described, both in the horse and ox; but, as they have nothing typical, the clinical picture does not possess anything expressive, the numerous variations so often observed being due to its frequently secondary nature. The greatest diversity of opinion exists among authors, some advocating the use of purgatives, others condemning them. Both local and internal remedies may be employed. In small animals the application of cold may, in the primary stages, aid in combating the inflammation. In the larger animals turpentine stupes are more suitable. In suppurative peritonitis the exudate may be removed and the serous membrane washed out with an antiseptic solution. Personally, Mr. Matthews preferred the use of opium to purgatives, enemas for relieving the bowel, and in addition the administration of diuretics. In traumatic cases free drainage should be given and antiseptics carefully used. Mr. Matthews closed his paper with a few observations on chronic cases and their treatment.

In the course of a few remarks Dr. Martin pointed out that in the human subject the administration of opium would mask certain symptoms which might indicate the necessity of an operation, which on this account might be delayed with unfortunate results to the patient. Before closing the meeting Dr. Baker drew attention to the fact that peritonitis was seldom diagnosticated in the lower animals unless there was some history of previous injury.

A regular meeting was held on the evening of February 11, 1897, the President, Dr. Baker, occupying the chair. Dr. Duncan McEachran and Dr. Dawes were also present. Owing to his approaching departure from Montreal, the Librarian tendered his resignation to the Society. This was accepted with much regret, and a vote of thanks to Dr. Thurston for the excellent order in which the library had been kept during his term of office was carried unanimously. Mr. Spanton was then elected to fill the vacant position.

The case report of the evening was furnished by Mr. Spanton, and this proved to be one of exceptional interest. A cocker spaniel, about a year old, got its tail jammed in a doorway. On Mr. Spanton making an examination he found the last two joints frightfully mutilated, and thinking it best to remove them, he did so. As it was not convenient for the dog to be at liberty he was tied up, to which he strongly objected, and a couple of hours later he was found to be hanging back and trying to slip the collar. When seen the next morning his neck was found to be much swollen and very tender; the collar was therefore removed and he was secured to the chain by means of a bandage put around the forelegs and tied over the shoulder. Hot fomentations were applied, but by evening the swelling had much increased and respiration had become a matter of great difficulty. Thinking that the animal needed immediate relief, Mr. Spanton made a tracheotomy-tube out of the handle of a metal tea-pot, and by making an incision half-way down the neck inserted the tube in the usual manner. This was kept in for three days; when removed the wound was stitched with silk, the result of the operation being that the animal made a good recovery.

Dr. Baker complimented Mr. Spanton upon his ingenuity and the success of his operation, and after the case had been discussed called upon Mr. Moore for his paper. This was entitled "Breeding and Care of Dairy Cattle."

Mr. Moore at once defined good breeding as improving the stock from generation to generation in order to produce milk in larger quantities and of better quality at the least possible cost. This must be done by selecting the best males and females and mating them. A reliable opinion as to the value of a cow can only be formed from an exact record of her actual performances; but as this can rarely be obtained, certain external signs, such as the shape of the body and udder, have often to be depended upon. In choosing a sire he should invariably be pure bred, good in his own points, and if, in addition, he has good pedigree, so much the better. In-breeding must not be carried too far, or it will be certain to do harm, the progeny will be predisposed to disease, the males often impotent, and the females barren. While speaking of the best breeds for dairy purposes, the essayist put in a strong claim for the Ayrshire, and then went on to describe the care of stock, which included feeding, watering, stabling, and general management. After discussing the properties of various foods Mr. Moore drew attention to the following standard, which appeared in the *American Dairyman:* Total organic matter, 24.51; digestible protein, 2.5; digestible carbohydrates, 13.77; fat, .74; total digestible matter, 16.2 pounds. The function of water as regards animals is a most important and vital one. In the first place, there must be a sufficiency of water or you cannot maintain animal life, and Mr. Moore laid great emphasis on the fact that this water must be free from pollution if we wish our animals to be healthy and vigorous and their products wholesome. It must be recollected that past immunity does not necessarily imply a pure supply, and, further, that the action of water is most insidious, and there can be little doubt that many cases of diarrhœa and indigestion may be attributed to its effects, these often being the forerunners of more serious disorders. Before closing his paper Mr. Moore gave some valuable hints upon stabling and general management.

In the discussion which followed Dr. Dawes, in replying to a question on the subject, said that five pounds was about the most profitable quantity of ground meals that could be used, and that this must be mixed with some coarser food. Brewers' waste might be used if fed under proper conditions. In compounding a ration the price of various foods and the object for which you are feeding (for milk or for butter) must be considered. In reply to a question as to how long a cow should be milked, Mr. Moore thought that up to a month or six weeks before calving was quite sufficient. Dr. McEachran said that prairie-cows weaned their calves when about five months old, provided they were able to do so, and that in this province some dairymen allow their cows to be dry for four to five months, and the tendency to become dry early might possibly become hereditary. When closing the meeting, Dr. Baker thanked Mr. Moore for having brought such an interesting and important subject before the Society. Dairying was undoubtedly at the head of agricultural interests, and offered a wide field to the members of the profession. Many questions had been asked that evening which could not be answered off-hand; but in selecting a milch-cow, in addition to other signs, one should note the size and length

of the milk-vein, and whether its course was straight or tortuous. In his opinion it was advisable to feed cattle three times a day, and whenever the weather permitted they should be let out. Water should be given in the barn, and if it was possible for them to have it constantly before them, so much the better.

The meeting then adjourned.

B. A. SUGDEN,
Secretary-Treasurer.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

THE regular bimonthly meeting was held on Friday evening, March 5, 1897. Meeting called to order at 8 P.M., President F. Klein in the chair.

Minutes of previous meeting read and approved. Mr. J. Hernsheim and Mr. H. Marshall were appointed to look up addresses for sending out letters of inquiry regarding the location of graduates.

Receipts of the evening, $2.40. On motion of Mr. Hernsheim, the sum of $5.00 was appropriated to the Pasteur Monument Fund. The Librarian was authorized to purchase a number of books, among them being Dr. Glass's translation of Müller's *Diseases of the Dog* and Walley's last issue on *Meat inspection*.

Mr. Franz Euge gave a very interesting address on "Horseshoeing," laying special stress on frog-pressure as concerned in diseases of the foot and limb, and strongly recommended the use of the bar-shoe instead of the various pads.

Mr. Zaner reported a case of a five-year-old mare that appeared to be choked. After discussing the case Dr. Bertram gave his opinion that it was meningitis.

President Klein reported a peculiar case of œdema in a cow, extending from both sides of the head over the back and down the posterior limbs, and that the cow was given a simple saline purge and recovered in two days. Mr. Shaw was appointed to look up such cases and enlighten us on the subject at the next meeting.

Critic Shaw reported favorably. Programme for next meeting was read by Mr. Ranck. Meeting adjourned at 10 P.M., to meet March 19, 1897.

The bimonthly meeting was called to order by President Klein, Friday evening, March 19, 1897. Minutes of previous meeting were read and approved.

On motion of Mr. Hernsheim, the chair appointed Messrs. Blount, Gelbert, and Hernsheim as a committee to draw up a set of rules to govern our library and circulation of books therefrom.

Mr. Kirby presented the name of Louis D. Horner, of the class of '98, for membership.

The regular order of business was dispensed with, and Dr. Guy Hinsdale, a member of the Philadelphia Society for the Prevention of Tuberculosis, was then introduced, who addressed the Society on "Climates and their Relation to Disease," and also presented the members each with some valuable pamphlets and tracts on tuberculosis. On motion of Mr. Shaw, the Doctor received the unanimous thanks of the Society for his kindness. On

returning to the regular order of business, Mr. Horner was duly elected to membership.

On motion of the Secretary, Dr. Harshberger received the thanks of the Society for reading matter donated by him to our library.

Mr. Blount read a paper on "Oleomargarine." Mr. Hernsheim read a paper on "How Can a Veterinarian Improve His Education?"

Mr. Kirby responded to the referred question, "When, Where, and by Whom was the First Plow Used?" Mr. Shaw responded to the referred question regarding the case reported by the President at the last meeting.

The Secretary read a letter from Dr. Salmon, expressing his personal thanks for the Society's donation to the Pasteur Monument Fund.

The critic of the evening, Mr. Lushington, read a favorable report. Mr. Ranck read the programme for the next meeting. Society adjourned at 10.30 P.M.

JOHN E. SPINDLER,
Secretary.

MANITOBA VETERINARY ASSOCIATION.

THE Provincial Veterinarians met at Winnipeg, along with other associations. President M. Young, of Manitou, in the chair. For the ensuing year the Directors chosen were: Drs. Young, Torrance, Dunbar, Rutherford, Thompson, Swinnerton, and Hinman. The Directors elected the following officers: President, W. J. Hinman; Vice-President, F. Torrance; Secretary-Treasurer and Registrar, W. A. Dunbar; Examining Officers, Messrs. Hinman, Torrance, and Dunbar; Auditors, Drs. Hinman and Thompson. Several interesting professional papers were read and discussed. A committee composed of Drs. Torrance, Young, and Rutherford was appointed to wait on the Pure-bred Cattle Breeders' Association and urge that Association to take action in the matter of tuberculosis inspection and certificates. It was decided that the next meeting of the Veterinary Association should take place at Winnipeg during the time of the Provincial Exhibition.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE meeting was called to order March 3d, at 8.30 P.M., at the Academy of Medicine, with the President, Dr. Huidekoper, in the chair. On roll-call the following members responded: Drs. Amling, Bretherton, C. C. Cattanach, J. S. Cattanach, Delaney, Ellis, Huidekoper, Hanson, Loomes, Machan, Miller, Murphy, Neher, O'Shea, Robertson, Ryder, and Winslow (17).

The minutes of the previous meeting were read and approved. Dr. Hanson read a carefully prepared paper on "Examination of Horses for Soundness," which was freely discussed by the members present. Moved and seconded that a vote of thanks be tendered Dr. Hanson for his paper; carried.

The Judiciary Committee (Dr. O'Shea, chairman) reported progress. Moved and seconded that the report be accepted; carried.

The Publication Committee, by President Huidekoper, reported progress. Moved and seconded that the report be accepted; carried.

An application for honorary membership was submitted as follows: "We hereby propose for honorary membership in the Veterinary Medical Association of New York County the name of Dr. W. Herbert Lowe,

as a man whose every aim is for the advancement and elevation of the veterinary profession; taking a keen interest in veterinary and scientific associations in general, and an especial interest in this Association." Signed by Robert W. Ellis, H. D. Hanson, and J. E. Ryder. Referred to the Board of Censors, to report at the next meeting.

Dr. Neher reported a case of "Fatty Infiltration of the Heart in a Dog."

Additions to By-laws to be considered at the next meeting, to wit: Moved and seconded that in the discussion of papers each member shall be entitled to one hearing only, not to exceed five minutes, and that he shall confine himself to the subject, and the essayist shall make one final reply, closing the discussion.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V. S.,
Secretary.

The following resolutions were adopted by the New York State Medical Society at their last annual meeting:

It is the opinion of this Society that the State Board of Health should be permitted to make such regulations under the law as will provide for the proper inspection of suspected cattle and for the destruction of diseased animals, and especially that the services of a competent pathologist should be employed whenever such seem essential to the conduct of the service; but that we are not in favor of placing this important duty in the hands of a State Veterinarian except he be under the absolute control of the State Board of Health with reference to appointment, duties, and salary.

GLEANINGS.

A malignant and fatal outbreak of diphtheria in a section of West Philadelphia was noted to be associated with a similar condition among the cats equally severe in character and with marked throat lesions. By order of the Board of Health the cats were destroyed so far as possible.

A local outbreak of cerebro-spinal meningitis occurred in Kent County, Maryland, in March. Oat straw was supposed to have conveyed the germs.

At the Veterinary Department of the University of Pennsylvania, under the direction of State Veterinarian Pearson, several tuberculous cows are being treated with tuberculin and kept under the best hygienic conditions as a means of arriving at a better knowledge as to the value of this agent as a curative measure, and

whether it is possible to use it in cases of mild tuberculosis with practical results.

Veterinarian Horton, of Providence, Rhode Island, reports the successful use of Sanmetto in a severe case of azoturia. The horse was down for forty-eight hours, regained his feet inside of seventy-two hours, and at the expiration of five days was placed at work.

A noted sheep raiser of Ohio, in the *Breeders' Gazette*, recommends the castration of lambs at the age of ten days. In docking, hot iron pincers are used to avoid hemorrhages.

The use of turpentine in burns is strongly extolled by Dr. McInnis in the New York *Medical Record*. Well sprinkled on a pad of absorbent-cotton, and applied, it aids the healing process very measurably. Endeavor to keep it applied to the burned surface only.

The most useful syringe for the administration of medicine by the mouth is a half-ounce hard-rubber one with a ring attachment to the piston-rod. The tongue may be held with one hand and the medicine syringed far back in the mouth, the ring aiding one by inserting the thumb in it, thus giving more force and not slipping off, as with a button-end rod. The amount given results in no loss, which often occurs in a larger-size syringe, which has the additional objection of not being so easily handled. Mouth-washes, tonics, mild stimulants, neutral fever mixtures, etc., are readily given this way without loss or interference with the taking of food or the worriment of drenching, which requires two persons.

Indiana possesses a law for liening colts, where the stallion is registered and licensed in accordance with the provision of the law.

But one importation of Percheron stallions to the United States was made in 1896.

Trichiniasis is rampant among the soldiers of the 104th Regiment at Chemnitz. Fifty-six of them are in the hospital, and fourteen have died as the result of eating pork of German or Bohemian raising.

One joint of beef out of every three consumed in London and the immediate district is American refrigerated beef.

A blunder occurred recently in one of our Eastern stock-yards where a detained storm-bound car-load of sheep was condemned by a local inspector for scab, which, on more careful and mature investigation by a veterinarian summoned by the shipper of the sheep, revealed only a loss of hair in some nineteen of the load, due to hair-pulling and biting incidental to the detention without food and water. This raises a serious question as to whether civil-service examination is yet broad enough to cover the needs in this service of our government, for a properly equipped inspector would hardly have committed this error, even if ever so careless. A government inspectorship for too many years was regarded as a sinecure or bounty, and as it was formerly obtained by political influence chiefly, and was only good for a term, it was considered unnecessary by the large proportion of those holding these positions to keep the dust from their text-books or read the journals so that every aspect of their work was fresh in their minds and they were equipped for every feature of their work. This, as well as disobedience of federal orders, must now be recognized as sufficient cause for dismissal from duty, and should be a lesson to all in the service that the government expects faithful work, and scientific in character also.

Robert T. Kneebs, on his second trial in Germany for bringing on the track the mare "Bethel" under the name of Nellie Kneebs, has again been convicted. He was sentenced to nine months imprisonment, to pay a fine of one thousand marks, to confiscation of his mare, and loss of civil privileges for two years. Prof. Eggling, the veterinarian sent to this country, testified against Mr. Kneebs.

A Flemington, N. J., cow, dying suddenly, an autopsy revealed pericarditis. Thirty-five nails from one to five inches long, sixteen stones about the size of walnuts, a carriage-bolt four inches long, and a padlock were found in the stomach. One of the nails had pierced the walls of the stomach and entered the muscular walls of the heart.

The Paterson, N. J., Veterinary Hospital has recently undergone a number of changes, making it more complete and perfect in its facilities. New canine-wards with special modern appliances; a bathtub in the equine department with hot- and cold-water connections; a specially fitted-up, large, padded stall for colic and other violent cases; enlargement of the pharmacy, and the

introduction of electric lights throughout the building, are among the changes introduced by Veterinarian Lowe.

Veterinarian Bowles, late of Richmond, Va., is now a salesman in one of Pittsburg's queensware stores. Dr. John H. O'Brien is now practising human medicine and surgery in the Smoky City. Dr. Charles Spicer is a retouching artist in a photograph gallery of the latter city. They represent the Classes of 1886, 1892, and 1889, respectively, of the Ontario Veterinary College. Such are the shadows over the paths of veterinarians.

The employment of veterinarians in the preparation of popular articles on well-known diseases and lameness of horses for holiday numbers of the leading sporting and breeding journals and the almanacs of certain well-known live-stock periodicals is a hopeful sign of the times.

The present low prices of horses in the United States should be a means of supplanting the dog, cow, and ox in many parts of Europe where heretofore the high cost of horses led to the impounding of these animals as burden-bearers.

Fears are entertained by Western live-stock raisers that the reciprocal arrangements just entered upon between Canada and the United States whereby an interchange of cattle through ports where inspections can be made will militate against the Western cattle-grower and favor the Canadian raiser to this extent.

Captain H. I. Smith, of Iowa, a large owner of stock, is reported to have contracted tuberculosis from diseased cattle. A year ago State Veterinarian Stalker destroyed a number of tuberculous animals on Captain Smith's farm.

Chicago's horse-meat establishment ships a carload of horse corned-beef every three weeks to Rotterdam, Holland.

The *Breeders' Gazette* quotes the noted thoroughbred owner, John J. McCafferty, on long tails, as follows: "In the first place, a long tail on a horse is useful to brush off flies in hot weather. A horse whose tail has been banged will fret and become very restless in fly-time, when attacked by a fly, as he has no means of getting rid of it. Even in the stall he scrapes and frets until he is worn out, and many times a horse will rub all the hair off his hip-bones in his efforts to rub off some insect which is annoying him. With a long tail a horse can whisk it around and dislodge a fly from almost any part of his body. This is my first reason. Again, a horse is not nearly as liable to be cut down in a race when he has

a long tail as he has when banged, for this reason: When a horse is running his tail sticks out similar to a flag in a high wind. This being the case, a horse coming from the rear cuts either to the inside or outside as soon as he catches a glimpse of a horse's tail in front of him. Consequently the longer the horse's tail the less liable is a horse to jump on him. Nervous horses always train better with long tails. They are generally thin-skinned and have short hair, consequently are bothered with insects more than a thick-skinned horse, and a long tail is almost a necessity to keep them from fretting and scraping until they become so weak and ill-tempered that they are not fit to race. I have found quite a difference between a thin-skinned horse and a thick-skinned horse. The latter class I have found very lazy, and have to be pushed to work. They also have a very heavy coat and do not answer to the whip and spur as readily as a thin-skinned horse. My reason for running horses high in flesh is the fact that they run stronger and run longer. A horse with plenty of flesh on his bones will run race after race without feeling it, while a horse keyed up to the highest pitch will surely go back after a race and has to be indulged before he is fit to race again. I am a great believer in running horses high in flesh."

PERSONAL.

Dr. John W. Adams was a participant in the annual reunion and dinner of the Philadelphia Chapter of the Psi Upsilon fraternity.

Mr. J. H. Brigham, Master of the National Grange, has been tendered and will accept the post of Assistant Secretary of Agriculture.

Veterinarian A. T. Sellers, of Camden, New Jersey, takes an active interest in the work of the Humane Society of that city.

Dr. A. K. Robertson, of Brooklyn, N. Y., has been on the sick-list. We are glad to report his convalescence, and trust that it may be complete.

Dr. Charles Bland, of Philadelphia, has been a sufferer from a severe sprain of the arm received in the performance of his professional duties.

Dr. James Fairley is associated with his brother in the ownership of a Broad Street livery stable.

Dr. William J. Denton, of Philadelphia, is nursing an injured arm, the result of a bite of one of his canine patients.

Dr. J. L. Ronan, of Corning, New York, after an illness which confined him to his bed for six months, is again at his post of duty.

Veterinarian W. J. Waugh, of the United States Army, has come east on a fifteen days' leave of absence. He will spend a good portion of his time with his brother, James A. Waugh, of Pittsburg.

Dr. W. B. E. Miller, of Camden, N. J., will be a candidate for reinstatement to a position in the Bureau of Animal Industry under the new administration.

Veterinarian W. N. Leavy, of New York City, has placed on the streets a very attractive canine ambulance in connection with his hospital.

Dr. George H. Bailey, of Deering, addressed the Maine Academy of Medicine and Science on February 8th on "Animal Tuberculosis." Those assigned as speakers in the discussion were Drs. J. F. Hill, Jesse A. Randall, Enoch Adams, Ernest W. Russell, A. L. Stanwood, Ex-Governor Cleaves, and Colonel Dow.

Veterinarian Hugh F. Doris, a student of law at a West Virginia college, has become the defendant in a $20,000 law-suit, the outgrowth of a horse deal.

The Western Humane Society of Pittsburg, Pa., has made the following appointments of veterinarians for the present year: Dr. James A. Waugh for Pittsburg proper, Dr. N. Rectenwald for the south side, Dr. H. S. Richards for the east end, and Dr. Charles M. Bond for the Allegheny district. This adoption of a staff of veterinarians will increase the Society's usefulness and facilitate prompt action whenever required.

Dr. E. H. Flood, of Philadelphia, late inspector of cattle for foreign shipment, has formed a copartnership with Dr. John A. Pearson, of Chicago. They have purchased the practice and hospital of the late Dr. William Tag.

At the twenty-fifth annual meeting of the Wisconsin Dairymen's Association in February Prof. E. A. A. Grange gave a practical address on diseases of the udder in cattle.

The Doylestown, Pa., *Intelligencer* of February 5th contains a very pointed article on bovine tuberculosis, for cattle-owners and dairymen, from the pen of President Ridge, of the State Association.

Veterinarian C. Howard Davidson, of Millbrook, New York, recently became a member of the American Berkshire Association.

Veterinarian J. D. O'Rourke, of San Francisco, Cal., holds the position of veterinarian to the city and county boards of health of that district.

Dr. John W. Adams has an excellent article on the bar-shoe in the *Horseshoers' Journal* for February and March.

Dr. E. H. Sheppard, of Cleveland, Ohio, is lecturing to the shoers of that city. Dr. M. J. Dunn, at Detroit, and Dr. Carter, at Saginaw, Michigan, are performing the same services for the shoers.

The United States Veterinary College at Washington has instituted a course of lectures for the horseshoers of the capital city.

Dr. F. C. Grenside, formerly of Guelph, Canada, has engaged in the export trade of horses to Europe. With others he has formed the American Horse Export Company.

Dr. George H. Bailey, of Portland, Maine, has been elected a Vice-President of the International Horsemen's Association recently organized at Chicago, Ill.

Veterinarian W. B. Stauffer, of Philadelphia, has opened an equine and canine infirmary in connection with his outdoor practice.

Dr. Charles Gresswell has just been reappointed State Veterinarian for Colorado by Governor Adams for a term of two years. This is a third term for Dr. Gresswell, he having been appointed by three different Governors.

Veterinarians F. S. Roop and George C. Faville hold the position of Assistant State Veterinarians in Virginia.

Dr. F. S. Shannon and H. B. Adair, recently stationed at Milwaukee in the meat-inspection department, have been transferred to the quarantine division, and assigned to duty at ports of entry on the Mexican border.

Ex-Secretary H. P. Rogers, of the Massachusetts Veterinary Association, was a visitor to the JOURNAL office in March. His vacation of a few days enabled him to visit Washington also.

Dr. James A. Waugh was veterinarian to the Duquesne Kennel Club show in March.

Secretary Edge, of the Department of Agriculture of Pennsylvania, has been compelled by illness to cease work, and on a leave of absence has gone on a trip in search of rest and renewed health. We wish for him an early and complete recovery.

Veterinary Surgeon Desmond, of Warrnambool, Victoria, has been appointed teacher of bacteriology and microscopical technology at the Melbourne Veterinary College.

Dr. A. W. Knight Tuck, of Melbourne, Australia, succeeds to the practice of Veterinary Surgeon Desmond at Warrnambool, Victoria.

Professor R. S. Huidekoper, of New York City, has recently received an appointment from the government of South Africa as resident inspector at the port of New York for all live-stock destined for shipment to any portion of the above-named country.

Dr. James A. Waugh, of Pittsburg, has purchased the practice and leased the hospital of Dr. John Doris, deceased.

Dr. David Waugh, graduate of the Indianapolis Veterinary College, will take an assistantship with his brother at Pittsburg.

Dr. R. S. Huidekoper, of the JOURNAL, will deliver in March and April a course of four lectures at the American Horse Exchange, New York City, on the exterior of the horse.

W. J. Hinman, V.S., of Winnipeg, Manitoba, has just returned from a trip to England.

Dr. J. C. McNeil and Superintendent of Police Lesley, of Pittsburg, were visitors to the JOURNAL office in March.

Dr. G. A. Johnson has been reappointed city meat-inspector for Sioux City, Iowa.

State Veterinarian Pearson has become a charter member of the Nittany Rod and Gun Club, with special rights and privileges in Centre County, Pennsylvania.

The experience of Dr. D. D. Lee, of Boston, in castrating the wrong donkey, terminating in a law-suit for damages, with a verdict for the plaintiff, adds another experience in the line of responsibilities that continue to heap themselves on the shoulders of the profession. Two donkeys on opposite corner lots seem loaded with danger to the approaching veterinarian.

SEEN AND HEARD IN MANY PLACES.

The New York State Veterinary College has succeeded in getting in the State supply-bill an item of $30,000 for maintenance. This assures the school continued support by the State.

Veterinary Surgeon Desmond, of Warrnambool, Australia, has a territory of two hundred and fifty miles to cover. His nearest colleague was one hundred and twenty miles away. Surely there was little chance for mingling views with his fellow-practitioner, and it must have been long waits between consultations.

The commencement exercises of the Kansas City Veterinary College this year will partake of a social character rather than a public function. The conferring of the degrees will be followed by a banquet.

The Atlantic Transport Line from New York, now engaged in seeking the foreign shipment trade in horses, has established a veterinary service corps in connection therewith. Each vessel has a veterinarian attached to the staff of officers, and all sickness and accidents among the horses are given professional attention. This is a wise movement.

The Milk Department of the Philadelphia City Board of Health in it annual report comes out strongly against the sale of milk in sealed jars and glass vessels.

The Buffalo *Horse World* inveighs strongly against the present law of the Empire State regarding the practice of the shoeing craft. The opposition is caused by the fact that one of their shoers was so indifferent to the existence of the law regulating the craft that he failed to register under its provisions. He subsequently presented himself, but failed in the examinations.

Maine has on hand a serious case involving the sale by one of her city butchers of a lot of cattle which had been condemned as tuberculous and ordered to be placed in the rendering-tank. Such daring effrontery as this should be most severely punished.

Practice in Iowa is reported by one of our correspondents as better in some localities, but throughout the State generally quiet.

In Mexico, turkeys, like sheep, are driven to market through the main streets.

A baby elephant in the winter-quarters of Dr. W. A. Conklin, in Brooklyn, having contracted a cold, was given quinine and whiskey for the same. He then gained access to the source of supply, became intoxicated, and encountered a huge phyton, which ended in the death of both elephant and snake.

The Poland China boar hog Happy Union brought the phenomenal price of $4000 at a sale in March at Jefferson, Iowa. He was bought by a syndicate of raisers. This sounds like the fabulous sums paid for standard-bred horses a few years ago, and may end in a grand crash, just as those prices in equine stock did, and from which recovery is very slow.

The Secretary of the Percheron Horse-breeders' Association gives as an additional reason for docking the sanitary proposition that it is an aid toward cleanliness.

"Ben," a venerable carriage horse at Long Branch, New Jersey, died recently. He was buried in state, and a tombstone was erected to his memory. He was forty-two years old.

In Paris they first utilize rats to clear the flesh from the bones of carcasses, then kill the rats, use their fur for trimmings, their skin for gloves, their thigh bones for toothpicks, and their tendons and bones for gelatin wrappers.

The owner of the stallion Allerton requires the following qualifications for mares to be stinted to this horse: They must be fashionably bred; their color must be bay, brown, black, or chestnut, with dark manes and tails; each mare must be from 15.1 to 16 hands high; all must be sound, stand square on their feet, and neither toe-in nor toe-out. They must all be square-gaited trotters (pacing mares by pacing horses will not be accepted). The limit of age will run from three to fifteen years. A mare over thirteen years old must have produced a fast trotter or have a fast trotting record herself. It will be interesting to watch the outcome of this wise step.

A recent shipment of horses from Nebraska to the vicinity of Philadelphia proved to have at least three cases of glanders in the lot. The balance of the shipment having been sold at a dispersal sale, their condition is not traced.

In a shipment of horses from the West to Boston a number of cases of glanders were discovered. Is it not time for us to have some interstate equine inspection?

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sary antiseptic precautions were used, such as shaving away the hair, and thoroughly disinfecting the surface with corrosive sublimate.) The syringe and all instruments used had previously been sterilized. The temperature of the animal was taken every two hours after the injection of the virulent culture, and fever charts kept of the same. The first 5 c.c. made the animal very dumpish in a very few hours, and the temperature would invariably rise from two to three degrees after the injection. They would not be entirely off their feed after the injection, but showed decided symptoms of not relishing the first feed. These symptoms lasted but a few hours, when signs of recuperation were noticeable. No antiseptics were used with the first injections, such as are prescribed with the Behring method for diphtheria, but all the succeeding cultures were injected with a few drops of carbolic acid. This was done to arrest suppuration and to avoid the large abscesses that formed within two days after the injection of the culture. The next injection was made five days later, and consisted of another 5 c.c. of a virulent culture. Again in five days another but larger dose was administered—10 c.c. We increased the dose 5 c.c. at a time, every week, until the animal was immune. The largest dose any of the animals received was 200 c.c. Two animals showed alarming symptoms after the first dose of 200 c.c., but soon rallied. After the animals ceased to react to the cultures they were bled and a small quantity of blood taken from them and tested on rabbits. This was done the same as is done in the method for testing diphtheria-serum. When it was found that the animal was sufficiently immune a larger quantity of blood was taken from the vein and put into the ice-chest to stand for forty-eight hours. The serum was then siphoned off into a large bottle, from which it was run through a filter—the filter described in the *Johns Hopkins Hospital Bulletin*, No. 51, which contains an article describing a quick method of filtering blood-serum. The bottle that receives the filtered serum contains a rather large piece of camphor, which, with the bottle, is previously sterilized. This bottle with the contents is then set away in a cool, dark place, and can be used at any time. The experiments at the laboratory have shown that it takes from 8 to 10 c.c. of undiluted serum to make a hog of about 150 pounds immune. We have never had any mishaps in the inoculations made in the various herds throughout the State. The herds which have not proven to be perfectly immune—as you will notice later—were those on which we tested the dose, not knowing positively the amount of serum necessary to make a large pig immune.

The question is, Which gives the power of immunity? Most of the literature of to-day seems to give credit to the leucocytes for their germicidal power, and others seem to credit it to a toxin in the blood. We are enlightened more and more every day with numerous experiments, but the experiments that have been conducted in the serum up to date, and mostly that of diphtheria serum (antitoxin) unquestionably show that it is the white blood-corpuscles which digest the bacteria. The main facts connected with immunity have been known from time immemorial. The horse does not contract the bovine diseases called contagious pleuro-pneumonia. The ox has a like freedom from glanders. They are examples of what is termed inherited or natural immunity. Before endeavoring to discover what happens when the germs of an infectious disease find their way into the body of an animal that has acquired immunity by a previous attack, it is well to have clear notions regarding the way in which the germs of infectious disease produce their deleterious effects. The pathogenic bacteria are vegetable parasites, and like many of the more highly organized members of the same kingdom, they elaborate substances that are poisonous to the animal body. As a familiar instance, Cadeac cites the experiment of putting yeast in a solution of sugar, which mixture will produce carbonic acid and alcohol. After a certain time the fermentation will stop. If we add sugar to the liquid, yeast will recommence growing, but the fermentation will soon again stop, and will not begin afresh even if we add more sugar. If, on the contrary, we add water, the fermentation will commence again, and will also do so if by heating the liquid we drive off the alcohol which has been formed. In the first case the effect of the water was not to add to the materials necessary for the nutrition of the ferment, but to dilute the matters formed by the yeast, of which alcohol was the principal. In the second, the heat expelled the alcohol or considerably diminished it, and the fermentation commenced anew. Here the alcohol has a poisonous or a paralyzing effect on the yeast which produced it. The theory may explain the fact that certain diseases, like contagious pleuro-pneumonia and pink-eye, run a definite course, at the end of which, if the animal has survived the severity of the symptoms, the disease will disappear. In this class of diseases the acquired immunity will naturally be comparatively short-lived. In affording an explanation for the action of the system in resisting the attack of diseased germs, pathologists as a rule take one of two sides, namely, that of those who hold the theory that

protection is obtained by serum of the blood; or that of those who, with Metschnikoff, award the credit to the leucocytes and cells of the part. Perhaps the safer plan would be to regard both theories as partly correct. Newtall and Buschner and others have shown that serum of the blood without the presence of leucocytes has a well-marked germicidal action, which, according to Funforder, is in accordance with the immunity of the particular animal. Now Funforder has shown that the germicidal power of the serum decreased with the temperature, and that it is strengthened by the addition of a drug which, like carbonate of potash or carbonate of soda, increases the alkali of the blood. We know that in inflammation the leucocytes and the cells of the injured part absorb and digest dead and effete matter. Now acquired immunity is never absolute. Thus, although one attack of smallpox or one of strangles almost always confers immunity from a second attack in respectively man or horse, exceptions are now and then met with. This immunity lasts a long time in some diseases; only a short period in others, and may have even a negative influence. In malarial fever, for instance, one attack increases the susceptibility to a second attack. In those diseases in which one attack has a well-marked power of conferring subsequent immunity, protection, according to Metschnikoff, is acquired by the previous training and devouring of microbes which the leucocytes have undergone. If we inoculate the virus of anthrax, for example, under the skin of an ordinary rabbit and of a rabbit which has been protected by vaccination, behold what we may observe at the respective seats of inoculation. In the ordinary rabbit the microbes multiply rapidly, the swollen part is full of watery fluid, and is poor in cells. Little by little the swelling extends, the neighboring ganglions enlarge, and the infection becomes generalized. In the protected rabbit, on the other hand, the bacilli multiply at first, but soon the leucocytes arrive in such great numbers that the microbes are taken and killed. The fluid in the swelling instead of being clear becomes thick. Cells are abundant in it, and the bacilli disappear. The disease does not extend and it becomes cured.

The experiments that have been conducted in the laboratory were to make pigs immune and to send them out to herds that were infected. This was done generally with the material that was sent in from a herd that made request for material. I will say that no material was granted to any herd before it was positively shown by cultures and by inoculations that the hog-cholera germ was present.

We tested the hogs at the laboratory, which experiment is still under way, with cultures and blood of animals that had succumbed to the disease. The animals would be tagged. One would be tagged "protected" and the other would be tagged "unprotected," and invariably within eight days the one that would not be protected would die, and on post-mortem the hog-cholera germ would be found. The dose generally received would be 1½ c.c. of the blood of an animal that had died, and that would be given to an unprotected animal. The same amount would be given to a protected animal with 10 c.c. of serum. Thus far at the laboratory we have not noticed any change in the animals, only we would notice on both animals an abscess forming at the seat of inoculation, which would heal up after ten or twelve days.

Experiments are now under way, feeding animals with dead material (viscera) of animals that succumbed to the disease. Thus far the unprotected animals contract the disease; and the others, that are tagged "protected" and run in the same pen with the unprotected animals, seem to fare well and show no symptoms of the disease.

Following is a statement of the various herds treated up to date:

The first antitoxin serum was used January 28, 1896, on Mr. S.'s herd of fourteen animals, two of which were sick. One of these succumbed.

The next herd treated was Mr. G.'s, on April 20th. This gentleman had ten sick ones and only one well one, and I may say eight of the ten that were sick were very sick—that is, they were very doubtful ones. Mr. G. lost five out of the ten sick, the well one not taking the disease at all.

On May 21st Mr. G. had suckling pigs inoculated, as he reported a loss of three head. He had lost no more after the inoculation. There were four head inoculated.

Mr. B. had sixty-three head inoculated on May 4th and 5th. Of the sixty-three head there were twenty-one sick ones, nine very sick, and four very doubtful of recovery. In that lot there were also fourteen piggy sows. Mr. B. reports a loss of only six—that is, the four doubtful ones died the following day, and two others.

The next herd was Mr. N.'s. Mr. N.'s herd was inoculated on May 18th. It consisted of eighteen head of pigs, seven of which were pronounced sick; two of these very sick. Mr. N. reports a loss of only two of the very sick ones.

Mr. W. reports his herd was inoculated on June 2d—103 head. Thirty-four of these were large hogs, seven of them with pigs, and

three of these had shown signs of disease. There were sixty-nine small ones; almost all of these sick at the time of treatment. There is so far no report of this herd.

Mr. O. L. S. had his herd treated on June 6th. It consisted of thirty-nine head: fourteen old ones, twenty-two suckling pigs, and three small shotes. At this writing we have no positive data as regards his experiment.

On July 25th Mr. C. had his herd inoculated—twenty-five pigs. These were in very poor condition at the time of treatment. They were so weak that the majority of them, say three-fourths, could not walk across the field. There is a report at this date of a loss of eleven of these animals.

On August 5th Mr. W. B. had seven head treated which were very doubtful cases, as they had not eaten anything for over a week. At this date there are three of those alive.

On August 5th Mr. D. H. had forty-two head treated. Fourteen of these were small pigs, twenty-four shotes, and four old sows; two tagged sick. At this writing we have a report of a loss of none.

Mr. John J. had his herd of fifty-seven head treated the same day. There were thirty-eight small pigs, seven old sows, and twelve shotes. Of these there were two of the small pigs sick, three large sows sick, and five small shotes sick. He has reported a loss of eight, but only of the ones that were tagged sick.

Mr. Z. S. B., on August 6th, had his herd of thirty-six head of shotes treated. He had two animals on his place that were sick for a week before treatment. At this writing there is no loss reported.

Mr. V. W. J. had his herd of twenty-three head treated as being a neighbor of an infected herd, and at this writing has reported no loss.

Messrs. J. & G. H. had their herd treated August 6th, of forty-three head, who at this date also report no loss.

August 9th Mr. I. P. had his herd of forty-six head treated, and reports that he has not lost any of the ones tagged treated, but reports losses of some that were left untreated.

August 11th O. M. E. had his herd of twenty-one head treated, on account of having his neighbors infected. At this writing reports a loss of none.

Mr. F. P. had one hog treated which was sick at the time of treatment, but does not report a loss at this writing.

Mr. J. E. M. was using a patent medicine for five weeks prior to his hogs taking the disease. He wanted eight animals treated on

which he had not used this patent medicine, and selected the sickest animals in the herd. They were tagged with our tag as being treated, and five of the eight at this writing have died; but there were thirty-five that were left untreated with patent medicine, and out of that number there are only eight alive.

Mr. A. E. P. had his herd treated, numbering twenty-eight, on account of his neighbor's hogs being infected, and reports at this date no loss.

Mr. M. K. had his herd of fifty-seven head treated. He reports a loss of eight, of which six animals were tagged sick.

Mr. M. S. had his herd of twenty-seven head treated on account of his neighbor's being infected, and at this writing reports no loss.

On August 20th Mr. C. A. Morrill, of Stromsburg, had twelve head in three different herds treated, all of which were very sick and doubtful of recovery. At present writing no report.

On August 22d Mr. C. H. Walker received 100 doses, which are also not accounted for.

DISCUSSION.

Dr. Salmon: I am sure we are all glad to listen to the paper of Dr. Peters and see that he has started out in this experiment in this branch, which is almost the last one to afford a harvest of thought in the way of securing information for curing sick animals of cholera or of granting immunity. There are some great difficulties to overcome in the management of hog-cholera in this way, and one of the principal ones is the fact that it is very difficult to distinguish between hog-cholera and swine plague, both of which are very common and both of which often affect an animal at the same time, so that the only way that I can see in which the two can be grappled with is to make the material, like the horses that are treated, immune of swine plague and hog-cholera, so that if the animal is affected by one or the other, or both, get the serum from the animal which we know has it, and then we might expect some good results.

Hog-cholera is difficult to manage for this reason, that the experiments that have been made in the past have shown that it is difficult to grant any immunity or any considerable degree of immunity by any sort of treatment; that is, it is a very easy matter to inoculate hogs with strong enough virus to produce immunity

but not in doses to kill, and you would suppose that if there is any such thing as giving immunity that that would be the best way to do it, and yet the experiments which have been made have shown beyond any reasonable contest that the inoculation of hogs as preventing this disease is a failure; that by any ordinary inoculation we cannot grant sufficient immunity to prevent the spread of the disease. There is only one way in which we have succeeded in this work by anything like immunity, and that was by vaccine inoculation, and in that way a degree of immunity would be produced which would grant a certain amount of protection.

As yet I believe that no one has been able to find anything that would make them immune so that it would last as long as the germs. A temporary immunity is produced with diphtheria and with other diseases by injections of serum, but not a very lasting one. The use of serum has rather been as a curative than a preventive, but still to a certain extent for prevention.

The comparatively small value of the animal, the short life of it, the expense of treatment, and the rather short period of time that the immunity produced by serum could be expected to last make it impracticable at the present time. If the disease breaks out in a district it generally keeps up for a considerable length of time, and very often starts in the spring or midsummer and lasts to midwinter—a considerable longer period than we could expect immunity to last in this way—so that to grant enough immunity to save the animal from the disease, the treatment and the time of the operator to give the injection, the cost of the serum, etc., are rather discouraging at first. But of course this is experimental work, and may be improved materially in that regard; and it is very fortunate that Dr. Peters has taken up the subject. He has shown that a serum can be produced with the horse that can be used to produce immunity to a certain degree, at least, and that there is a prospect of getting some practical results from it.

I may say, although it is rather premature, that we have been working in this line in Washington, and we have made some tests with horses, but not sufficiently to give much of an opinion upon it. But my idea was that the serum treatment would be more valuable as a treatment for sick hogs than to produce immunity; it may be that temporary immunity will be valuable, but we must all remember that it requires a great many experiments with this disease before we can reach any conclusion. You can treat hog-cholera with drugs of various kinds and get the most astonishing results.

You have herds where you can apparently cure almost all of the cases of the disease that occurred, and then you strike other herds where you give the same medicines and get practically no results from it; and that is the way also when you undertake to treat the disease by inoculation. Inoculation, as we all remember, was tried on a considerable scale in the western part of the country, and at one time it was thought that it was giving valuable results; but on a large scale it was not. I think we should give Dr. Peters all the encouragement we can, and test this on a large scale and see exactly what he can get out of it. The Bureau will continue its experiments in the same line, and I hope, by comparing the work, to be able to get it introduced in other stations and have them take up the work so we can get a sufficient number of experiments from which we can get some good results.

I will say that it is much easier to protect against swine plague than hog-cholera. It is easier to grant immunity and easier to cure. In order to have your experiments reliable it is necessary to make a complete diagnosis in order to get that. Dr. Peters did not tell us how he determined the fact that it was hog-cholera—I presume by investigations; but unless he is very much more expert than the bacteriologists—than those I relied upon in the government experiments—I must say that I do not see how he could reach positive conclusions, because in the outbreaks in the West sometimes we cannot find the hog-cholera germs at all, and in other cases we find swine-plague germs in the lesions of hog-cholera, and sometimes find both germs in the same animal, so that the results of experiments are more or less doubtful under these conditions, which are hard to guard against, and from which it is hard to get good and satisfactory results, even by the bacteriologist's exertions.

Dr. Kilborne: I have but one point to offer, and that is this: As I understood the essayist, in all these cases the whole herd was treated.

Dr. Peters: On account of the lack of serum and our inability to get it, we divided the herd and only treated one-half of it.

Dr. Kilborne: The point I wish to bring up is: in these cases of hog-cholera the first deaths will occur more or less suddenly; they will be followed by scattering deaths, and then the rest of the herd will make more or less rapid recovery. In only a few cases does the disease carry off the whole herd. But in applying any treatment to a herd where the disease has already broken out it would be impossible to tell whether the disease had run its course and that all the

deaths had occurred that naturally would where the whole herd is treated. I know of many cases where it has been tried with patent medicines on one or two or a few hogs, and with apparent success—I do not mean patent medicines, but the so-called specific—and the proprietors of the specific have jumped at conclusions and thought they had a specific, and have put it on the market as such. When such a remedy has been tested on healthy animals, or on herds that were divided, and by testing it upon one-half of the herd and leaving the other half without it, it is found that the specific is a positive damage.

Now, in the case of the serum, I sincerely hope that its use will prove successful, but at the same time I should want to get some results from it to show more conclusively that it had a positive curative or preventive effect. In treating with serum, if the herd was equally divided as far as possible, if an outbreak has occurred, by dividing the healthy—separating the healthy and the diseased into two lots equally, and treating one and leaving the other—if there is a marked difference between the treated and untreated, we can give the serum credit for it then. In another case healthy herds can be taken, as I believe several herds were taken; if one-half of the herd were treated and the other half untreated, then in case the disease broke out in the herd we would have some data from which to judge of the efficiency of the serum treatment. I know in a large number of experiments undertaken under my direction while at Washington, and from observations in the field, we found that we could place very little reliance on any results to be judged from where the whole herd was treated alike. In so many cases the deaths would cease where there was no treatment applied whatever. In other outbreaks deaths would continue; so that I would suggest that in order to show the efficiency of the serum we ought to have tests on divided herds—herds in which one-half of the animals are treated and the other half left—then the whole experiment will exhibit from the results what the serum in fact will do.

Dr. Gill: I know nothing about hog-cholera, so far as the application of serum is concerned. So far as toxins are concerned we are getting it very strong—three times as strong as we were before; and so far as the application of the serum is concerned, I think its use is more available as a preventive than as a curative, and I will give you an illustration. If a case of diphtheria is found in some orphan asylum or several cases, say the inmates number four or five hundred, the affected children are injected as well as the inmates, the

inmates being injected with a milder serum as a preventive, with a view to immunize them. And I notice that serum has to be given while they have sufficient vitality left. If a person or an animal is given serum after, say, the vitality has been considerably lowered, you get no good results. We have had several cases where we used tetanus antitoxin in horses, and if we injected the serum when we noticed the very first symptom we could effect a cure; but if it had advanced considerably, the effect of our serum was that we got no good results. I think you can use the serum more as a prophylactic than as a curative. If you are called upon to examine or treat a herd of hogs affected with hog-cholera, the disease has made such a progress that the vitality of the animal is lowered and the action of the antitoxin will be of no avail; that has been my experience; you must use the serum early to expect any good results; but I think as a prophylactic it is an excellent agent.

Dr. Peters: Replying to Dr. Salmon's remarks, I will say that I tried to make as accurate an examination of the hog-cholera germs as possible. We recognize the fact that there are two germs. But in the majority of cases in which it is proven to be swine plague the most virulent is found to be in the pulmonary form; but as I stated in my paper, we never pronounced a case to be hog-cholera unless we made the inoculation, the culture, and the microscopical test; then we were satisfied, as far as my knowledge was concerned, that it was a case of cholera. We are now trying to get our serum distributed over the whole State.

Dr. Stalker: The comparatively small value of the pig, its short life, the expense of doing the work, and all that, will, I think, conspire against its being a successful prophylactic for cholera. No matter how efficacious the serum may be, I have very serious doubts about its being successful with the present conditions. I am quite inclined to the belief that the restrictive measures—sanitary and police regulations, local restrictions that will interfere with and prevent the spread of the disease—have the greatest degree of value in them of anything yet presented for the benefit of the taxpayers. I do not mean to say anything to discourage the valuable experiments of Dr. Peters, and I am very glad to know that he is so interested in this important work, but I simply want to express my doubt that it will ever become successful.

A STUDY OF CATHARTICS.

By M. H. REYNOLDS, M.D., V.M.

These experiments as originally planned were on a very small scale and very simple; but the study became interesting, and the result has been sixty experiments with eserine and thirty-two with barium--others with aloes and with aloes and calomel. This has naturally resulted in the accumulation of a mass of statistics and observation notes, of which only summaries and conclusions can be given in a paper of this length. It must be remembered that a majority of these experiments were upon horses not sick, and are to be regarded as experiments in physiological effects rather than actual therapeutics.

The writer has thought best not to discuss the materia medica or theoretical therapeutics of the medicines used, but rather the results, comparisons, and ranges of usefulness.

DATA TAKEN.

Period A.

Period A covers twenty-four hours before the time of administration.

Data taken: Pulse, temperature, and respiration at 12 M., 5 P.M., 10 P.M., 7 A.M. and 12 M. the second day.

Bowel discharges: Number from 12 M. to 5 P.M.; 5 P.M. to 10 P.M.; 10 P.M. to 7 A.M.; and from 7 A.M. to 12 M. the second day; total number for the twenty-four hours and total weight.

Dose given at 12 M.

Period B.

Period B covers the twenty-four hours immediately after the time of administration.

Data taken: Pulse, temperature, and respiration at 12 M., 1 P.M., 2 P.M., 3 P.M., 5 P.M., 10 P.M., 7 A.M., and finally 12 M. at the close of period B on the third day.

Bowel-discharge record taken as follows: When the first discharge appeared which showed the effect of the dose; number of discharges from 12 M. to 1 P.M.; from 1 P.M. to 2 P.M.; from 2 P.M. to 3 P.M.; from 3 P.M. to 5 P.M.; from 5 P.M. to 10 P.M.; from 10 P.M. to 7 A.M.; and from 7 A.M. to 12 M. at the close of period B. Total number during the twenty-four hours of period B and the total weight of feces discharged.

In some cases a further period of twenty-four hours was added to the experiment and named period C. The purpose of this was to compare various medicines and doses in their effects as to condition of the feces, number, and weight of discharges during this period of twenty-four hours, and compare these with the period A; we then had an accurate record of the bowel discharges not only during this

period A, but also during two successive periods of twenty-four hours each after administration of the cathartic.

In this way I could get comparisons of the pulse, temperature, respiration, and bowel discharge records, taken at certain hours and for certain periods during the twenty-four hours preceding, with similar data taken during the twenty-four or forty-eight hours, as the case might be, succeeding the administration of the medicine and incidentally have the opportunity to study the subsequent effect of the medicine when the active catharsis had ceased.

It must be remembered that the horses used for these experiments were mainly not sick horses. Some were colics, impactions, etc. Those were purely experimental, however, which I used for comparisons and studies of physiological effects, for it is impossible to get two or more sick horses in conditions nearly enough alike to make the comparisons valuable. The hospital cases are all specified as hospital cases or H. C.

The writer feared that since these experimental horses were getting but moderate exercise in the yards, and, with few exceptions, no active work, this might lessen the value of the normal averages, which, for the bowel-discharge records, might be too low for both number and weight; and, again, their lack of active work might render them less susceptible to cathartics than working horses. To settle this point records were taken of thirteen work horses on the State farm.

TABLE A.—NORMAL BOWEL RECORD.

	Name. (Working horses.)	Age	Wt.	Condition.	Feed. Kind of work.	Hay. Kind.	Hay. Amt.	Grain. Kind.	Grain. Amt. p.day	Sex	Color.	Bowel discharges. 7 A.M. to 12 M.	12 M. to 5 P.M.	5 P.M. to 10 P.M.	10 P.M. to 7 A.M.	Total number.	Total weight.
1	Baby,	6	1350	Good	Farm	Poor	Ad lib.	Oats	21	F.	Black	1	2	2	3	8	33
2	Daisy,	6	1350	"	"	"	"	"	21	F.	"	2	2	1	3	8	42
3	Fan,	6	1300	"	"	"	"	"	21	F.	Gray	1	1	1	1	4	22.5
4	Ned,	10	1200	"	"	"	"	Gr.fod.	18	M.	Bay	1	1	2	2	6	27.5
5	Maud,	7	1275	"	Heavy carriage	"	"	Oats	15	F.	Sor.	1	2	2	3	8	37
6	Dandy,	10	1200	"	Farm	"	"	"	18	M.	Black	2	1	2	2	7	33.5
7	Chub,	10	1200	"	"	"	"	"	18	M.	"	0	1	1	1	3	23
8	Frank,	6	1200	"	"	"	"	"	20	M.	Bay	1	1	1	2	5	25
9	Pat,	6	1200	"	"	"	"	"	20	M.	"	2	1	2	2	7	32
10	Harry,	20	900	"	Driving	Good	"	"	16	M.	Sor.	1	2	3	2	8	30
11	Josie,	8	900	"	"	"	"	"	15	F.	Gray	2	2	3	2	9	35
12	Brownie,	6	850	"	"	"	"	"	12	M.	Bay	3	2	3	4	12	33
13	Kit,	7	1200	"	Farm	Poor	"	"	18	F.	Gray	4	2	3	3	12	54
															Averages,	7.4	32.9

A comparison of their bowel records with my experimental horses in the hospital shows an average number of discharges per twenty-four hours of 7.4 and an average weight of 32.9 pounds.

TABLE B.—NORMAL AVERAGES.

No.	Name.	No. taken.	Bowel discharges. No.	Bowel discharges. Weight.	Temp.	Pulse.	Resp.	Number of times temp., pulse, and resp. taken.
1	Harry	3	8.33	30.0	99.76°	32.9	15.4	3
2	Jim	7	9.8	28.1	96.9	34.4	17.0	3
3	Dick	16	8.6	37.4	100.1	41.0	12.3	57
4	Lady	6	10.5	23.9	100.3	40.0	12.6	18
5	Josie	2	9.5	34.7	.....	.....	.....	...
6	Jim, 2d	6	16.5	40.5	99.0	40.0	9.5	24
7	Dolly	1	22.0	35.0	99.8	42.0	16.0	3
8	Brownie	2	12.5	33.0	100.6	45.0	15.0	8
9	Nick	4	8.7	26.9	100.5	38.5	12.8	7
10	C. C.	10	9.1	30.2	100.3	43.2	14.0	15
11	Kenwood	6	8.0	30.5	100.1	39.2	16.0	12
12	Whitey	8	10.5	31.7	100.3	47.2	14.5	16
13	Prince	1	10.0	44.5	100.4	34.0	20.0	4
14	Dandy	1	11.0	40.0	101.0	48.0	16.0	4
	Hospital horses' average	.....	11.07	33.3				
15	Baby	1	8	33.0				
16	Daisy	1	8	42.0				
17	Fan	1	4	22.5				
18	Ned	1	6	27.5				
19	Maud	1	8	37.0				
20	Dandy, 2d	1	7	33.5				
21	Chub	1	3	23.0				
22	Frank	1	5	25.0				
23	Pat	1	7	22.0				
	Average of 23 horses	.....	8.3	31.8	99.9	39.7	14.6	

The experimental horses in the hospital—fourteen in number—show an average of 11.07 bowel discharges in twenty-four hours and an average weight of 33.3. In each lot there were a few that varied far from the normal, but it will be observed that the averages agree closely. When the averages of both lots are taken the results show the average number of discharges to be 8.3 and the average weight 31.8.

With some horses the series would begin with the maximum doses, and the smaller doses be given in series later. With others the first dose would be the smallest planned, and then progressively larger ones be given, in order that the possible source of error—decreasing susceptibility—might be discovered and checked. This gives a chance to compare a given dose of eserine, *e.g.*, with another dose consisting of the same eserine plus a variety of doses of pilocarpine, then eserine compared with eserine and atropine; then doses of eserine with the

best selected amount of pilocarpine compared with the same doses of eserine and pilocarpine plus atropine in the best selected amount, usually 0.05 grain ; then this last dose is compared with another in which the eserine and pilocarpine are the same, but strychnine is substituted for the atropine. Each dose and the series comparisons duplicated with as many different horses as possible. The barium experiments give a chance to compare the most satisfactory eserine combinations with barium. Conclusions will be given later.

For the eserine experiments all doses are in grains on a standard of 900 pounds weight. The doses quoted in this paper are the doses a given horse would have received if he had weighed 900 pounds. This is done for the sake of speed and ease in comparing doses and results. As a matter of fact, the actual doses were in proportion to weight.

For all the barium experiments the doses were also given in proportion to live weight, but on a basis of 1000 pounds standard, and the doses are quoted as in grammes. I think that the majority of veterinarians are in the habit of estimating eserine doses in grains and the barium doses in grammes.

For the barium chloride 8 grammes were selected as the smallest dose per mouth, and 0.75 as the minimum dose per intravenous method. The per mouth series consisted of 8, 10, 12.5, 15, and in two cases 20 grammes. In some cases a dose would be given in bolus, then duplicated in solution to see if there was a material difference as to the method of administration. The series selected for the intravenous method was 0.75, 1. and 1.5 grammes in 10 per cent. solution. When the ideal dose proportion or balance of the medicines used had been decided, then this dose was to be given to cases in practice and records kept.

The Medicines. It frequently happens in the use of cathartics that the results are very unsatisfactory. It may be that results are wanting—a large dose is apparently without effect upon the bowel movements, or a small dose may act with unexpected and alarming severity. It may be that there is an extreme depression, painful peristaltic activity, severe muscular tremors, and so on, and the question becomes an interesting one why, in this particular case, the results were so very unsatisfactory. I shall try to answer some of these questions later.

TABLE C.—MEDICINAL DOSE.

Drug.	Pulse.	Respiration.	Temperature.	Arterial pressure.	Secretions.	Arterioles.	Vascular tone.	How eliminated.	Peristalsis.	Involuntary muscle-fibres.	Hollow organs.
Eserine,	—	x then —	o	— then x	*— x	...	...	Secretion.	x	x	(—)
Pilocarpine	†—	o	o	—	x	x	—	Secretion.	x	—	(—)
Atropine,	x	x then —	x	x	—	*(x)(—)	*— x	Secretion, especially urine.	*— x	*— x	
Strychnine,	x	x	o	x	x	(—)	x	Urine.	x	x	(—)
$BaCl_2$,	—	x	o	— then x	x	(—)	x	.....	x	x	

o. Nil.
—. Lessens or depresses.
x. Increases or stimulates.
*. Depends on large or small dose.
(—). Contracts.
(x). Dilates or expands.
†. Authors differ.

It will be noticed that all these medicines increase secretions except atropine in large doses, and that even it has this effect in small doses, and the same remarks apply to their effects on peristalsis. All stimulate contractions of involuntary muscle-fibres except pilocarpine, which has something of a reverse effect. Atropine stimulates the involuntary fibres in small doses and the reverse in large doses. Upon the hollow organs in general, eserine, pilocarpine, and strychnine contract them.

Barium. Bartholow says of barium, in his *Materia Medica*, in speaking of the physiological effects of barium chloride on the human, that in full medicinal doses it causes irritation of the stomach with sense of heat or burning at the epigastrium. One case is reported where symptoms of poisoning came on in one week after the administration of $\frac{1}{2}$ grain three times daily, the whole amount taken being $2\frac{1}{2}$ grains. The symptoms were extreme exhaustion and nervousness. He thinks a peculiar idiosyncrasy must have existed in this case or so small an amount would not have produced such pronounced symptoms. . . . He says the usual symptoms in cases of poisoning are intense anguish, free salivation, great thirst, loss of voice, vomiting, purging, dilated pupils, frequent micturition, respiration slow and labored, and slow pulse, increasing weakness, and finally complete paralysis of the extremities. The chief post-mortem conditions are pronounced rigidity, bronchial effusion, and hyperæmia of the lungs, heart distended, with black blood, and brain engorged. In the stomach intense hyperæmia, sometimes perfora-

tion; $2\frac{1}{2}$ grains have produced serious symptoms; 1 drachm has caused death in seventeen hours and 1 ounce in one hour.

Large doses suddenly injected into the jugular cause paralysis of both heart and lungs; death is caused rather by paralysis of the respiratory muscles than by cessation of the heart-action. Paralysis in the lower animals begins at the lower extremities.

Barium causes strong cardiac contractions, dilated pupils, energetic peristalsis of the bowels, even closure of the lumen of the intestine and of the bladder, and almost complete approximation of the peripheral vessel-walls.

Let us study for a moment the criticism of a cathartic effect. What are the unsatisfactory results that may follow the administration of a cathartic?

We may have a fatal poisoning; the result may be less serious, but there may be extreme pain; there may be severe depression, severe muscular tremors, or an agent may be uncertain and results difficult to estimate. There may be actual constipation; the effect may be *nil*, or extreme purging and a possible enteritis; there may be a persistent and objectionable after-period of constipation when the cathartic action has ceased. A common and very unsatisfactory result appears in those cases in which there is at first a very active effect apparently, but the discharges are small, little but watery fluid passes, and there is little movement of actual feces. It is very common that after the administration of a cathartic there appear quite a number of discharges—many more than would have appeared under normal conditions; but the total weight of feces passed during the twenty-four-hour period may be very much less than would have occurred without the cathartic, and so whereas we wish to unload the bowels, as a matter of fact we may have accomplished just the reverse.

Ideal Catharsis. What constitutes an ideal cathartic effect? The answer to this must depend to a large extent on the object to be accomplished; but in general there should result the movement, during twenty-four hours, of from three to ten or more pounds of feces, more than would have occurred without the medicine during the same period; there should be a gain in number for this period of perhaps five; the pain resulting from the dose must be *nil* or moderate; there should follow slight or no after-constipation; there should be no extreme depression during the active catharsis, and I dislike very much the severe muscular tremors that sometimes follow the use of certain drugs. The drug should be such that there

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